

# **Conceptual Transformation for the Contemporary Operational Environment**

**A Monograph  
by  
MAJOR Wesley R. Odum Jr.  
United States Army**



**School of Advanced Military Studies  
United States Army Command and General Staff College  
Fort Leavenworth, Kansas  
Academic Year 02-03**

**Approved for Public Release; Distribution is Unlimited**

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Wesley R. Odum Jr.

Title of Monograph: Conceptual Transformation for the Contemporary Operational Environment

Approved by:

|                          |   |
|--------------------------|---|
| COL Waelde, Rainer, MA   | Monograph Director                            |
| COL James K. Greer, MMAS | Director, School of Advanced Military Studies |
| Philip J. Brookes, Ph.D. | Director, Graduate Degree Program             |

Accepted this 4<sup>th</sup> Day of May 2003

## **Abstract**

Conceptual Transformation for the Contemporary Operational Environment by MAJOR Wesley R. Odum Jr., USA, 72 pages.

The purpose of this monograph is to recommend the retention, modification, or abandonment of certain concepts of the current elements of operational design based on their continued validity within the contemporary operational environment. Military theorists and doctrine writers have struggled over the last two decades with the concept of a revolution in military affairs and its impact on current and future operational concepts. This monograph seeks to answer the question of whether the elements of operational design currently used in the campaign planning methodology remain valid in the contemporary operational environment.

Many writers are attempting to answer this question and to resolve the conflicts between each services view of how to visualize, describe, and ultimately direct operations. Their answer to this question will drive the Joint services and subsequently the U.S. Army's operational concepts for the near future. The elements of operational design provide planners with the cognitive tools required to solve problems involving the application of military power to achieve operational or strategic objectives. The validity of their cognitive tools necessarily determines the subsequent validity of their solutions.

This paper's method examines the assertion that theoretical elements that are valid in one operational environment remain valid in another operational environment. Transfer validity holds as long as the environments are sufficiently similar. If the environment has changed, or the original theory did not account for all aspects of the environment, then the new or expanded operational environment might require modification of the theoretical construct. The current elements of campaign design originated with the theoretical writings of Carl von Clausewitz and Baron Antoine Henri de Jomini. These theorists based their works on the operational environment extant in the Napoleonic era. Contemporary doctrine adapted their concepts for use in campaign planning methodology as the elements of operational design in the new contemporary operational environment.

This monograph recommends the retention, with modification, of the elements of center of gravity, decisive points, lines of operations, and culminating point. It suggests that doctrine subsume the concepts of operational reach and operational pauses into the parent concept of the culminating point and the abandonment of the concept of defensive culmination. It advocates that doctrine place the concept of operational approach under the concept of lines of operations and the deletion of the concept of logical lines of operation. It recommends the amalgamation of the temporal elements of simultaneous and sequential operations with that of tempo into a new construct that takes a more holistic view of time as it relates to spatial and purpose based concepts. Lastly, it recommends removing the concept of linear and nonlinear operations, and the associated concepts of contiguous and noncontiguous operations, from the elements of campaign design.

## TABLE OF CONTENTS

|   |    |
|---|----|
| <u>TABLE OF CONTENTS</u> .....                                    | iv |
| <u>INTRODUCTION</u> .....   | 1  |
| <u>THE CONTEMPORARY OPERATIONAL ENVIRONMENT</u> .....             | 7  |
| <u>THE ELEMENTS OF OPERATIONAL DESIGN</u> .....                   | 14 |
| <u>NAPOLEONIC ERA OPERATIONAL ENVIRONMENT</u> .....               | 20 |
| <u>ORIGINS OF THE ELEMENTS OF OPERATIONAL DESIGN</u> .....        | 27 |
| <u>THE EVOLUTION OF OPERATIONAL DESIGN IN THE U.S. ARMY</u> ..... | 42 |
| <u>ELEMENTS OF OPERATIONAL DESIGN IN CAMPAIGN PLANNING</u> .....  | 48 |
| <u>ASSESSMENT</u> .....   | 54 |
| <u>CONCLUSION AND RECOMMENDATION</u> .....                        | 63 |
| <u>BIBLIOGRAPHY</u> .....   | 68 |

## CHAPTER ONE

# INTRODUCTION

Military theory must continually adapt to the environment in which it expects to operate. Hence, military theorists must continually seek to improve their understanding of the military art. Doctrine writers must seek to translate theories into practical instruction and guidance for use by military leaders. Military practitioners seek to apply these concepts in a dynamic environment to achieve their objectives. In turn, military practitioners provide feedback to theorists and doctrine writers, helping them to revise their theories and doctrines. This monograph seeks to examine a portion of this cyclical process.

Military theorists, doctrine writers, military leaders, and other practitioners must constantly seek to improve the conceptual basis for military operations. As the only remaining superpower and current leader in the military realm, the U. S. Army is seeking to bridge the gap from Cold War theories, doctrines and practices to new methods of war for the future Objective Force. It is doing this in the context of what the U.S. Army called the “Contemporary Operational Environment” (COE).

Joint Pub 1-02 defines an operational environment as “a composite of the conditions, circumstances, and influences that affect the employment of military forces and bear on the decisions of the unit commander.”<sup>1</sup> The contemporary operational environment is the U.S. Army’s view of the milieu of conflict in the near future and serves as the basis for doctrine development, training scenarios, leader development, organization and material development. How the U.S. Army views its potential operational environment drives everything that it does,

---

<sup>1</sup> Joint Chiefs of Staff. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Joint Electronic Library, Washington, D.C.: US Government Printing Office, 1 September 2001) 384.

particularly germane to this research, is that it drives the conceptual development of how to employ forces to achieve the objectives of campaigns.

Adapting to the COE is part of the U.S. Army's larger process of executing the Chief of Staff of the Army's concept of Transformation. This concept calls for a holistic change whose goal is to produce an Objective Force that is strategically responsive and dominant across the full spectrum of conflict in the Contemporary Operational Environment.<sup>2</sup> Since armies normally based their doctrines on historical analysis, it is important for the U.S. Army to review periodically its doctrine to insure its continued relevance in light of continually changing environments.

An initial review of the literature suggests that the Department of Defense and the U.S. Army are simultaneously evaluating this very question but have not yet reached a conclusion. For example, Joint Forces Command, who is responsible for testing joint doctrine, has only issued its Rapid Decisive Operations concept in draft form.<sup>3</sup>

In the search for that conclusion in recent years, authors in U.S. Army professional journals have explored purported Revolutions in Military Affairs including Information Age Warfare, Network Centric Warfare, Effects Based Operations, and 4<sup>th</sup> Generation Warfare, and many authors claim that these new concepts herald an era radically different from previous ones. For example, the Strategic Studies Institute recently published its second edition of *Transformation Concepts for National Security in the 21st Century* with critical analysis of various proposed joint operational concepts.<sup>4</sup> The U.S. Army has experimented with different force structures to

---

<sup>2</sup> U.S. Army, *White Paper, Concepts for the Objective Force*, available at <http://www.army.mil/features/WhitePaper/ObjectiveForceWhitePaper.pdf> , 2.

<sup>3</sup> United States Joint Forces Command, *A Concept for Rapid Decisive Operations: RDO Whitepaper Version 2.0*, (Norfolk: United States Joint Forces Command, 2001).

<sup>4</sup> Williamson Murray, ed., *Transformation Concepts for National Security in the 21<sup>st</sup> Century* (Carlisle, PA: Strategic Studies Institute, 2002).

implement these emerging concepts to include Strike Force, Force XXI, and the newest, the Stryker Brigade Combat Teams.

Despite nearly a decade of theoretical, doctrinal, and practical experimentation, the U.S. Army and the Department of Defense have yet to modify its campaign planning methodology. Recent doctrinal publications like FM 3-0, JP 3-0, and most recently, JP 5.00.1 seem to have continued the evolutionary development of our doctrinal approach to campaign planning. This current doctrine is the evolutionary heir of Clausewitz' and Jomini's rationalistic analysis of the campaigns of the Napoleonic era. If the new Contemporary Operational Environment is truly revolutionary, the question arises, "Are the elements of operational design still valid in the contemporary operational environment?"

## METHODOLOGY

The next two sections define the elements of an operational environment and describe the contemporary elements of campaign design to establish a basis for examining the research question. Understanding these elements is crucial for understanding the remainder of the monograph. Each of the elements appears throughout theoretical and doctrinal writings and different writers have defined or described the elements differently over time. Since the purpose of this research paper is to examine the continued validity of these elements it is important that all readers share a common framework of understanding before delving too deeply into the subject.

The fourth section describes the operational environment of Napoleonic warfare that served as the context for the theories of war developed by Clausewitz and Jomini. While contemporary doctrine draws from many theorists, these two theorists' writings continue to dominate the U.S. Army's campaign planning methodology.<sup>5</sup> This section uses the elements of the operational

---

<sup>5</sup> Brian Bond, *The Pursuit of Victory: From Napoleon to Saddam Hussein* (New York: Oxford University Press, 1996) 3.

environment discussed in FM 3-0 as the framework for examining and understanding the operational framework that formed the basis of the works of Clausewitz and Jomini.

The fifth section identifies the historical origins of selected elements of operational design as developed by Clausewitz and Jomini. Examining the major and minor works of these two theorists and understanding them in the context of their time, allows for a fuller understanding of the original meanings of the terms and concepts underlying modern campaign planning. It is important to understand these terms and concepts historically to fully appreciate their relation to each other within both writers' complete theoretical construct as well as their application within the operational environment of the Napoleonic era. Historical understanding is the prerequisite for assessing their continuing validity as the theories have evolved and been applied doctrinally.

The sixth section traces the evolution of these key principles and selected elements of operational design in U.S. Army doctrine. This study limits itself to examining their development since the advent of the Airland Battle doctrine in 1982. Arguably, this rejection of the tactically focused Active Defense doctrine marks the watershed for the emergence of modern operational art in the U.S. Army.<sup>6</sup> The demise of Active Defense and the advent of Airland Battle doctrine and operational art in the early 1980s reignited interest in and discussion of many of the key principles and concepts of Clausewitz and Jomini and led to their incorporation into the U.S. Army's campaign planning methodology.<sup>7</sup> While doctrine has evolved since, few have questioned the continuing validity of the underlying assumption that the theories developed upon the foundations of Napoleonic era warfare remain valid in an operational environment that has seen nearly two hundred years of change.

---

<sup>6</sup> MAJ Paul H. Herbert, Leavenworth Papers Number 16, *Deciding What Has to be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations* (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army, CGSC, 1988) 106.

<sup>7</sup> Herbert, 3-10.

The seventh section describes how the key principles of Clausewitz and Jomini, in modified form, are integrated into the current campaign planning methodology. This description includes the steps of the current campaign planning methodology as well as how planners integrate the selected elements of operational design into that methodology. Understanding the contemporary application of the elements derived from the Napoleonic era facilitate assessing their continuing relevance in the Contemporary Operational Environment.

The eighth section assesses the continuing validity of the U.S. Army's current campaign planning methodology by comparing and contrasting the conditions of warfare between the operating environments of Napoleonic era with the contemporary operational environment and then assessing the impact of the changed conditions. This allows the evaluation of the continued validity of those key principles of operational design developed by Clausewitz and Jomini.

In conclusion, the research will lead to a recommendation that the U.S. Army retain, modify, or reject the selected elements of operational design based on their continuing validity. If applicable, the analysis might suggest new elements of campaign design more relevant and valid within the emerging operational environment.

## **RELEVANCE**

Are the theories of war and by extension the key principles and concepts that Clausewitz and Jomini developed, and modified by others since, still applicable given the historical changes that have occurred? Currently, both the U.S. Army and the Department of Defense are involved in what is termed 'Transformation'. Currently, the U.S. Army is conducting Operation Enduring Freedom in the COE. If the new COE is radically different as so many authors claim, then the U.S. Army needs to validate its approach to campaign planning or begin the search for a new one to meet the demands of the Revolution in Military Affairs.

The U.S. Army has explored the concept of a revolution in military affairs since the early 1990's.<sup>8</sup> Some have defined a revolution in military affairs as “*a fundamental advance in technology, doctrine, or organization that renders existing methods of conducting warfare obsolete.*”<sup>9</sup> A revolution in military affairs extends beyond the military domain and is the result of changes that occur in more than one aspect of the operational environment.<sup>10</sup>

If a revolution in military affairs really occurred in the Napoleonic era then the discontinuity renders preceding theories and doctrines nearly irrelevant. While there is no true historical discontinuity because all changes occur over some period of time (no matter how short), the revolution in military affairs creates a period of accelerated change that differs so markedly from those preceding or following that it appears as a discontinuity. This period may be a historical blink of the eye if it occurs over a century but those involved in it may have difficulty recognizing its full impact and dimensions given their inherently limited perspective. It is difficult to know if a revolution in military affairs is occurring in the midst of the revolution itself.

The revolution in military affairs that occurred in Napoleonic era was predominantly conceptual.<sup>11</sup> If we are currently experiencing a revolution in military affairs as many claim then there may be a need to change our concept of how to conduct campaign planning. A revolution in military affairs may require a new theory of war supported by new concepts including new methodologies of campaign design. It may even include changing the very elements of campaign design themselves.

---

<sup>8</sup> Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little-Brown, 1993) 22.

<sup>9</sup> Original emphasis. Michael Mazarr, et al., *The Military Technical Revolution. A Structural Framework* (Washington: CSIS, March 1993), 16.

<sup>10</sup> David Jablonsky, US Military Doctrine and the Revolution in Military Affairs (Parameters, Autumn 1994) 18.

<sup>11</sup> Christopher Bellamy, *The Evolution of Modern Land Warfare: Theory and Practice* (London: Routledge, 1990) 53-78.

## CHAPTER TWO

### THE CONTEMPORARY OPERATIONAL ENVIRONMENT

Understanding the contemporary elements of campaign design and the operational environment will set the stage for the remainder of the discussion. Joint Publication 3-0 and the Army's FM 3-0 provide us with contemporary elements of operational design. The elements of campaign design provide a framework for tracing the development of theory from the Napoleonic era to the present. The elements of the operational environment provide the basis for comparing the changes that have occurred since Clausewitz and Jomini developed their original theories and the concepts used in contemporary campaign design. FM 3-0 describes the Army's view of the environment in which it must operate.

One can trace the emergence of the idea of articulating an operational environment in previous relevant versions of FM 100-5 including the 1976, 1982, and 1986 versions but only the 1993 version of FM 100-5 discusses the operating environment in terms similar to the current version. FM 3-0 identifies six elements that comprise the operational environment including threat dimension, political dimension, unified action dimension, land combat dimension, information dimension, and technology dimension.<sup>12</sup> Subdividing the operational environment into these six categories allows us to analyze and compare differing operational environments.

Current doctrine defines the threat dimension in a variety of ways. The definition included a description of potential actors as "nations, nonstate actors, and transnational entities" as further influential threat categories.<sup>13</sup> It further states that conflicts limited to two sides are rare and that multinational groups will oppose similar groups with conflicting interests. These conflicts may threaten the United States either directly or indirectly. FM 3-0 states that current and future threats may include regional powers with modern conventional force capabilities that include

---

<sup>12</sup> Department of the Army, U. S. Army Field Manual 3-0, *Operations*, (Department of the Army, Washington, D.C.: June 2001) 1-8.

<sup>13</sup> Ibid, 1-8.

“information technology, ballistic and cruise missile capabilities, WMD, and genetic engineering.”<sup>14</sup> It describes transnational threats as “terrorism, illegal drug trading, illicit arms and strategic minerals trafficking, international organized crime, piracy, and deliberate environmental damage.”<sup>15</sup> FM 3-0 goes on to portray the methods that these adversaries might use as “adaptive” and “asymmetric.”<sup>16</sup>

FM 3-0 further illustrates the methods by stating, “Adversaries will continue to seek every opportunity for advantage over US and multinational forces. When countered, they will adapt to the changing conditions and pursue all available options to avoid destruction or defeat.”<sup>17</sup> It also states that they will employ anti-access strategies, disperse into nonlinear and noncontiguous areas, and conduct simultaneous operations using conventional and unconventional capabilities. FM 3-0 also declares that the potential opponents will use “complex terrain, urban environments, and force dispersal methods – similar to those used by the North Vietnamese.”<sup>18</sup> The U.S. Army derived this broad description of the threat dimension largely from the U.S. National Security Strategy and National Military Strategy, which also sets the stage for what FM 3-0 calls the “political dimension.”

FM 3-0 uses the description of the political dimension to establish the context for the use of military force into the broader national security spectrum. In it, the Army asserts that, “the military objective in war is rapid, decisive victory.”<sup>19</sup> Yet it recognizes a limit to the use of military power when it states that, “military operations influence, and are influenced by, political

---

<sup>14</sup> Ibid, 1-8.

<sup>15</sup> Ibid, 1-8.

<sup>16</sup> Ibid, 1-8.

<sup>17</sup> Ibid, 1-9.

<sup>18</sup> Ibid, 1-9.

<sup>19</sup> Ibid, 1-10.

direction and the integrated use of other instruments of power.<sup>20</sup> FM 3-0 ties the use of military force in the context of the National Military Strategy to the broader National Security Strategy by stating, “The NCA (National Command Authority) determine how that victory contributes to the overall policy objectives.”<sup>21</sup>

It goes on to identify the requirements for the commander to understand and be able to articulate how the use of the military instrument fits into the larger political dimension.<sup>22</sup> It also charges the commander with understanding the military conditions necessary for contributing to overall victory, as well as how tactical, operational, and strategic actions have political implications.<sup>23</sup> It also states that the army commander has a responsibility to advise other military and political leaders of the capabilities and limitations of their forces.<sup>24</sup> Closely related yet subordinate to the political dimension is the 'Unified Action Dimension'.

While the description of the unified action dimension states that Army forces will “act as part of a fully interoperable and integrated joint force,”<sup>25</sup> it also asserts, “Army forces are the decisive force for sustained land combat, war termination, and postwar stability.”<sup>26</sup> FM 3-0 states that the Army will participate in both major theater wars (MTW) and smaller-scale contingencies (SSC) as part of a joint, interagency, and possibly multinational force.<sup>27</sup> It also says, “Close

---

<sup>20</sup> Ibid, 1-10.

<sup>21</sup> Ibid, 1-10.

<sup>22</sup> Ibid, 1-10.

<sup>23</sup> Ibid, 1-10.

<sup>24</sup> Ibid, 1-10.

<sup>25</sup> Ibid, 1-10.

<sup>26</sup> Ibid, 1-11.

<sup>27</sup> Ibid, 1-11.

coordination is the foundation of successful unified action.”<sup>28</sup> After describing whom Army forces will operate with, FM 3-0 describes the “Land Combat Dimension.”

FM 3-0 asserts, “Land combat continues to be the salient feature of conflict.”<sup>29</sup> Army doctrine states that land combat “usually involves destroying or defeating enemy forces or taking land objectives that reduce the enemy’s effectiveness or will to fight.”<sup>30</sup> FM 3-0 further describes land combat operations as distinguished by four characteristics that include; scope, duration, terrain, and permanence.<sup>31</sup> The scope of land combat is described as “simultaneous and sequential operations in contiguous and noncontiguous AO’s” to “seize and retain key and decisive terrain”.<sup>32</sup> FM 3-0 states that commanders use “maneuver, fires, and other elements of combat power to defeat or destroy enemy forces.”<sup>33</sup> It says, “Land combat normally entails close and continuous contact with noncombatants.”<sup>34</sup> Current doctrine describes the duration of land combat as “repetitive and continuous.”<sup>35</sup> Contemporary doctrine paints the picture of terrain as a “variety of natural and manmade features” whose complexity “contrasts significantly with the relative transparency of air, sea, and space.”<sup>36</sup> FM 3-0 states that land combat dimension includes permanence because “Land combat frequently requires seizing or securing ground. With control of the ground comes control of populations and productive capacity. Thus, land combat makes

---

<sup>28</sup> Ibid, 1-11.

<sup>29</sup> Ibid, 1-11.

<sup>30</sup> Ibid, 1-11.

<sup>31</sup> Ibid, 1-11.

<sup>32</sup> Ibid, 1-11.

<sup>33</sup> Ibid, 1-11.

<sup>34</sup> Ibid, 1-11.

<sup>35</sup> Ibid, 1-11.

<sup>36</sup> Ibid, 1-11.

permanent the temporary effects of other operations.<sup>37</sup> In this section, Army doctrine reiterated the assertion that land combat is the decisive form of combat and it follows up by describing how it will exploit the information dimension to dominate land combat.

“Information superiority enables Army forces to see first, understand the situation more quickly and accurately, and acts faster than their adversaries,” claims FM 3-0.<sup>38</sup> While recognizing that the information environment is largely outside the control of military forces, Army doctrine realizes that its forces reflect the United States to a global audience via the media and other organizations.<sup>39</sup> FM 3-0 says the information dimension consists of “the aggregate of individuals, organizations, and systems that collect, process, store, display, and disseminate information; also included is the information itself.”<sup>40</sup> Army doctrine asserts that information superiority will enable decisive operations by allowing commanders and forces to seize and retain the initiative.<sup>41</sup> The information dimension has gained prominence because of the recent advances in computers, digital communications, and command and control software that reflect changes in the last dimension – technology.

FM 3-0 states that, “Technology enhances leader, unit, and soldier performance and affects how Army forces conduct (plan, prepare, execute, and continuously assess) full spectrum operations in peace, conflict, and war”.<sup>42</sup> The technology dimension represents the tools available for war. These tools go beyond traditional weapons systems and include those tools that support command, control, combat support, and combat service support. All these technological changes lead to improvements in all aspects of the dynamics of combat power including

---

<sup>37</sup> Ibid, 1-11.

<sup>38</sup> Ibid, 1-12.

<sup>39</sup> Ibid, 1-12.

<sup>40</sup> Ibid, 1-12.

<sup>41</sup> Ibid, 1-12.

<sup>42</sup> Ibid, 1-12.

firepower, maneuver, protection, leadership, and the aforementioned information. Army doctrine recognizes that U.S. forces do not have a monopoly on advanced technology and, in some instances, may fight opponents with superior technology. FM 3-0 also recognizes that the side with superior technology is not always victorious but most often goes to the side with skilled soldiers led by competent leaders.<sup>43</sup> Competent leaders must exploit technology to expand their conceptual ability to design a campaign that will lead to success while recognizing that a good plan is a necessary but not sufficient prerequisite for victory.

The taxonomy that the U.S. Army divided the operational environment into probably says as much about how doctrine approached the issue as the elements themselves. While the threat, political and land combat operations dimensions are timeless, the choice of unified action, information, and technology dimensions reflect relatively modern trends in the factors that influence military operations. The threat dimension described the nature, type, and quantity of threats. The political dimension reaffirmed the primacy of political goals in shaping conflicts while the unified action dimension adds the perspective of the growing interdependence of services on the battlefield and actors on the global stage. The land combat operations dimension reflects land armies growing need to explain their contribution and justify their role in wars. The information and technology dimensions reflect the increased importance of science and industrial and postindustrial cultures ability to harness human creativity to adapt and modify all, but especially, militarily significant dimensions. How the U.S. Army described its environment reflected as much about itself as the actual operational environment.

The Army's view of the operational environment has evolved over time and FM 3-0 includes six dimensions. FM 3-0 states that Army leaders will apply the "visualize, describe, and direct" methodology to solve operational and tactical problems within the context of those six

---

<sup>43</sup> Ibid, 1-12 – 1-14.

dimensions of the operational environment.<sup>44</sup> To assist in that process, Army doctrine articulates a set of conceptual tools known as the “elements of operational design.”<sup>45</sup> Before examining the continued utility of the elements of operational design, it is important to understand their contemporary U.S. Army doctrinal definitions.

---

<sup>44</sup> Ibid, 5-6.

<sup>45</sup> Ibid, 5-6.

## CHAPTER THREE

### **THE ELEMENTS OF OPERATIONAL DESIGN**

The Army has identified nine elements of operational design. FM 3-0 asserts, “The operational design provides a conceptual linkage of ends, ways, and means.”<sup>46</sup> Army forces use the nine elements to assist commanders and staffs in visualizing, describing, and directing operations. FM 3-0 approaches the discussion using a “reverse planning” sequence that begins by linking the political dimension of the operating environment with the first element of operational design – end state and military conditions.

FM 3-0 defines end state as “the conditions that, when achieved, accomplish the mission”<sup>47</sup>. It further qualifies the definition for the operational level saying they are the conditions that “attain the aims set for the campaign or major operation.”<sup>48</sup> The U.S. Army assumes that peace, with civil authorities in control, is the normal state of affairs both nationally and internationally. Therefore, it describes the strategic end state as,

What the National Command Authorities want the situation to be when operations conclude – both those where the military is the primary instrument of national power employed and those where it supports other instruments. It marks the point when military force is no longer the principal strategic means.<sup>49</sup>

The establishment of certain military conditions is supposed to create the desired end state through a causality relationship. Commanders extend that same causality linkage downward until it translates into tactical missions via task and purpose relationships.<sup>50</sup> These connections commanders mean to insure victory, which as stated earlier, is the objective of all military

---

<sup>46</sup> Ibid, 5-6.

<sup>47</sup> Ibid, 5-6.

<sup>48</sup> Ibid, 5-6.

<sup>49</sup> Ibid, 5-6.

<sup>50</sup> Ibid, 5-6.

operations.<sup>51</sup> U.S. Army doctrine declares that the most direct path to victory is to attack the enemy's center of gravity.<sup>52</sup>

Army and Joint doctrine defines center of gravity as "Those characteristics, capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight."<sup>53</sup> Doctrine cautions commanders that they may need to attack the enemy's center of gravity directly or indirectly while protecting their own.<sup>54</sup> FM 3-0 states that the center of gravity is a "vital analytical tool" that "becomes the focus of commander's intent and operational design."<sup>55</sup> It says that commanders "describe the center of gravity in military terms, such as objectives and missions."<sup>56</sup> To help commanders further identify objectives for subordinates, doctrine offers the concept of decisive points.

"Decisive points are not centers of gravity; they are keys to attacking or protecting them," states Army doctrine. It defines decisive points as "a geographic place, specific key event, critical system, or function that allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of an attack."<sup>57</sup> Army doctrine charges commanders with "selecting the decisive points that will most quickly and efficiently overcome the enemy center of gravity"<sup>58</sup> and allow him to "select objectives that are clearly defined, decisive, and attainable."<sup>59</sup> While stating that decisive points may be psychological and not physical, it describes lines of

---

<sup>51</sup> Ibid, 1-10.

<sup>52</sup> Ibid, 5-6.

<sup>53</sup> Ibid, 5-7.

<sup>54</sup> Ibid, 5-7.

<sup>55</sup> Ibid, 5-7.

<sup>56</sup> Ibid, 5-7.

<sup>57</sup> Ibid, 5-7.

<sup>58</sup> Ibid, 5-7.

<sup>59</sup> Ibid, 5-7.

operations as connecting geographical “decisive points that lead to control of the objective or defeat of the enemy force.”<sup>60</sup>

FM 3-0 defines lines of operations as “lines that define the directional orientation of the force in time and space in relation to the enemy. They connect the force with its base of operations and its objectives.”<sup>61</sup> Doctrine states that lines of operation may be logical as well as physical, interior or exterior, and operations may require one or multiple lines of operation. Army forces may conduct operations from start to finish along lines of operation without break or commanders may need to anticipate culminating points that will require a pause in operations.

This version of Army Operations adds the concept of defensive culmination to the traditional offensive concept. FM 3-0 defines the offensive culminating point as “that point in time and space where the attacker’s effective combat power no longer exceeds the defender’s or the attacker’s momentum is no longer sustainable, or both”.<sup>62</sup> It goes on to define defensive culmination as “that instant at which the defender must withdraw to preserve the force”.<sup>63</sup> As with the other concepts, FM 3-0 attempts to extrapolate these concepts across the full spectrum of operations by providing examples of their applicability to stability or support operations. The logical application of the concept of culmination in concert with lines of operations leads to concepts of operational reach, approach, and pause.

FM 3-0 defines operational reach as “the distance over which military can be employed decisively.”<sup>64</sup> If the force cannot achieve its objectives in a continuous operation, it may need an operational pause before continuing. The manual defines an operational pause as “a deliberate

---

<sup>60</sup> Ibid, 5-8.

<sup>61</sup> Ibid, 5-9.

<sup>62</sup> Ibid, 5-9.

<sup>63</sup> Ibid, 5-10.

<sup>64</sup> Ibid, 5-10.

halt taken to extend operational reach or prevent culmination.<sup>65</sup> “Operational approach is the manner in which a commander attacks the enemy center of gravity,”<sup>66</sup> states FM 3-0. Doctrine advises the commander to choose an indirect over a direct approach when feasible.<sup>67</sup> Current doctrine defined the indirect approach as an attack against the enemy center of gravity by “applying combat power against a series of decisive points that avoid enemy strengths.”<sup>68</sup> Doctrine describes the less preferable direct approach as applying “combat power directly against the enemy center of gravity or the enemy’s principle strength.”<sup>69</sup> The commander’s choice of operational approach ideally brings the enemy’s center of gravity within friendly operational reach without need for an operational pause while simultaneously keeping the friendly center of gravity out of his opponent’s operational reach. If unable to achieve this in simultaneous operations, a commander may need to execute sequential operations.

The relative scale and scope of the theater and the enemy force to friendly resources determine whether a commander will be able to choose simultaneous over sequential operations. Simultaneous operations “employ combat power against the entire enemy system” by “concurrently engaging as many decisive points as possible” using “joint and service capabilities.”<sup>70</sup> When this is not feasible commanders use sequential operations to “achieve the end state by phases” by concentrating “combat power at successive points in time and space” to “destroy and disrupt the enemy in stages, exposing the center of gravity step by step”. Simultaneous operations lend themselves are more frequently nonlinear while sequential operations tend towards linearity.

---

<sup>65</sup> Ibid, 5-10.

<sup>66</sup> Ibid, 5-10.

<sup>67</sup> Ibid, 5-10.

<sup>68</sup> Ibid, 5-10.

<sup>69</sup> Ibid, 5-10.

<sup>70</sup> Ibid, 5-11.

Nonlinear operations are more frequently noncontiguous but not exclusively so.<sup>71</sup> Linear operations are normally contiguous but commanders can expect any variation of linearity and contiguity.<sup>72</sup> Nonlinear operations had better support attacking multiple decisive points and inducing shock against the enemy's system.<sup>73</sup> Linear operations simplify sustaining operations by providing greater protection for lines of communications but they also require a certain ratio of forces to space.<sup>74</sup> Commander's choices on varying linearity and contiguity influence the forces ability to generate and sustain the tempo of the operation.

FM 3-0 defines tempo as "the rate of military action."<sup>75</sup> The concept of tempo supports the Army tenet of initiative because "controlling or altering that rate is necessary to retain the initiative."<sup>76</sup> Army doctrine stresses that commanders "adjust tempo to maximize friendly capabilities" and to "consider the timing of effects" not actions.<sup>77</sup> Doctrine also cautions commanders that tempo is relative to the enemy's rate of action and that a higher tempo exacts a cost in increased "fatigue and resource expenditures."<sup>78</sup> Commanders seek to employ tempo and the other elements of operational design to achieve their objectives at the least cost in time and resources.

Current doctrine asserts the elements of operational design are valid tools for commanders to use in visualizing how to design a campaign in the contemporary operational environment. That assertion is valid as long as there is transfer validity between the contemporary operational

---

<sup>71</sup> Ibid, 5-11.

<sup>72</sup> Ibid, 5-12.

<sup>73</sup> Ibid, 5-12.

<sup>74</sup> Ibid, 5-12.

<sup>75</sup> Ibid, 5-12.

<sup>76</sup> Ibid, 5-12.

<sup>77</sup> Ibid, 5-12.

<sup>78</sup> Ibid, 5-12.

environment and the operational environment from which the original theorists drew those elements of campaign design. Clausewitz and Jomini originated the elements of operational design and they developed those elements based primarily on their study of the Napoleonic era operational environment.<sup>79</sup>

---

<sup>79</sup> Bellamy, 55-58.

## CHAPTER FOUR

### **NAPOLEONIC ERA OPERATIONAL ENVIRONMENT**

Understanding the operational environment will serve as the basis for analyzing the development of military theories that were written by Major General Carl von Clausewitz and Baron Henri Antoine Jomini. Both of these military theorists fought in the Napoleonic wars and based their writings on their experiences.<sup>80</sup> Further, each of these prominent theorists was a student of his profession and thoroughly studied the development of military arts and sciences before the age of Napoleon.<sup>81</sup> As such, they were able to recognize the Revolution in Military Affairs that occurred in the Napoleonic era.<sup>82</sup> Each attempted, largely successfully, to develop a theory of war to describe the interaction of forces in their “contemporary operational environment.” For the context of this study, the Napoleonic era spanned the period from 1792 to 1815, which encompasses the rise and fall of Napoleon’s military career.<sup>83</sup>

The threat dimension that interested both Clausewitz and Jomini centered on the campaigns of Napoleon.<sup>84</sup> Both theorists were primarily interested in war between empires, nation states and the alliances and coalitions that they formed as judged by the emphasis each placed on the conventional versus people’s war in their major works.<sup>85</sup> They were aware of conflicts with other groups, what we would term sub state or non-state actors today including tribes, religious

---

<sup>80</sup> Baron Antoine Henri de Jomini, *The Art of War*, translated by CAPT. G. H. Mendel and LIEUT. W. P. Craighill (London: Lionel Leventhal Limited, 1992), v.

<sup>81</sup> Jomini, viii.

<sup>82</sup> Bellamy, 41.

<sup>83</sup> Gunther E. Rothenberg, *The Art of War in the Age of Napoleon*, (Bloomington: Indiana University Press, 1978), 11.

<sup>84</sup> For example see Major General Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976) or Baron Antoine Henri de Jomini, *The Art of War*, trans. CAPT. G. H. Mendel and LIEUT. W. P. Craighill (London: Lionel Leventhal Limited, 1992).

<sup>85</sup> Clausewitz and Jomini.

factions, city-states, guerillas, terrorists, partisans, and irregulars, but they focused their theories on the armed forces of nation states. Most historians and theorists have followed their lead, for example, under the heading of “Opponents of the French,” one prominent historian discusses Austria, Prussia, Russia, and Great Britain but elected not to discuss the guerillas that fought in the Peninsula campaign or the insurgents that fought in Naples.<sup>86</sup> This focus reflects a historical bias towards the most common or dangerous threat at the time the author wrote his history or theory.

Who the threat is depends on ones perspective. For the opponents of Napoleon, first the French Republic and subsequently the French Empire was the threat. Clausewitz fought against the French forces under Napoleon and his writings reflect this view.<sup>87</sup> Jomini’s writing reflects the fact that he largely fought for the French under Napoleon.<sup>88</sup> Both Jomini and Clausewitz address other threats but only as secondary issues. This reflects that their experiences were largely confined to the conflicts in Western Europe. Both writers’ optimized their theories for, but did not confine them exclusively to, what we would today term symmetrical threats. That is the conventional armed forces of a nation state or group of nation states versus another nation state or group of nation states.

In the days of the ancient regimes, the policies, national security strategy, national military strategy, theater strategy, campaign plan, and tactical employment all rested in the hands of one person – the monarch.<sup>89</sup> Frederick the Great was a typical example.<sup>90</sup> This system possessed the advantage of avoiding miscommunications between political and military authorities and

---

<sup>86</sup> Rothenberg, 165.

<sup>87</sup> Clausewitz, 330-340.

<sup>88</sup> Jomini, 14.

<sup>89</sup> Jay Luvaas, “Frederick the Great: The Education of a Great Captain,” in The John Biggs Cincinnati Lectures in Military Leadership and Command 1986, edited by Henry S. Bausum (Lexington, VA: The VMI Foundation, 1986), 24.

<sup>90</sup> Ibid, 24.

facilitating the subordination of military ends and means to political control. In cases where governments based succession on heredity, the tutors could train the future ruler in political, diplomatic, and military arts.<sup>91</sup> In case where the sovereign did not conduct military operations or when there was a separation between military and political authority there was the possibility that military adventures might be counterproductive politically. For example, Napoleon's decision to invade Spain but then neglecting the problem and leaving the actual conduct of the war to others arguably led to the ultimate French failure there.<sup>92</sup>

In Napoleon's case, he began as military expert employed by the new Republican leaders but soon became a monarch in his own right.<sup>93</sup> His military roots eventually led to his over employment of the military option which finally resulted in exhaustion and collapse.<sup>94</sup> This example along with other historical examples led Clausewitz<sup>95</sup> and Jomini<sup>96</sup> to emphasize the primacy of the political objective versus war for wars sake. One way to avoid or delay military exhaustion is to act with allies or as part of a coalition of nations or other international actors.

In the Napoleonic era, nations formed alliance and coalitions with other nation states, empires, or non-state actors. In the era of Napoleon, it was more common to form temporary coalitions to face certain threats.<sup>97</sup> This allowed nations the flexibility of maintaining a balance of power in Europe. For example, the Ulm-Austerlitz campaign was part of the war known as the War of the Third Coalition.<sup>98</sup> Napoleon's use of the continental system is an example of alliances

---

<sup>91</sup> Ibid, 24.

<sup>92</sup> David G. Chandler, *The Campaigns of Napoleon* (New York: Simon and Schuster, 1966), 611.

<sup>93</sup> Ibid, 1122.

<sup>94</sup> Ibid, 1094-1095.

<sup>95</sup> Clausewitz, 80-81.

<sup>96</sup> Jomini, 14.

<sup>97</sup> Chandler, 413.

<sup>98</sup> Rothenberg, 45.

during the era.<sup>99</sup> However, this was not necessarily an alliance of the willing.<sup>100</sup> The British Empire formed alliances with various non-state actors most notably in Spain<sup>101</sup> and Naples<sup>102</sup>. In addition to alliances and coalitions, the Unified Action Dimension covers the arena of joint operations.

During the Napoleonic wars, most combatants on both sides conducted joint operations. Both Clausewitz and Jomini<sup>103</sup> focused on the land dimension but each addresses joint operations to a limited degree. For example, neither theorist addresses the Battle of Trafalgar, perhaps one of the most famous and important sea battles of their time and certainly important in the context of the Napoleonic wars. Perhaps Napoleon's most famous joint expedition was his campaign in Egypt.<sup>104</sup> Clausewitz' and Jomini's neglect of the naval dimension resulted in a focus on the land dimension of combat operations.

In this era, though naval battles were important, battles on land were the ultimately the decisive arbiters in the war.<sup>105</sup> In the Napoleonic era, the physical scope of land operations, both physically and temporally, grew in proportion to the increasing size of the armies.<sup>106</sup> During this period, for practical purposes, fires were capable of direct fire, line of sight engagements only.<sup>107</sup>

---

<sup>99</sup> Chandler, 742.

<sup>100</sup> Ibid, 742.

<sup>101</sup> John L. Tone, *The Fatal Knot: the Guerilla War in Navarre and the Defeat of Napoleon in Spain* (Chapel Hill, NC: The University of North Carolina Press, 1994) 4.

<sup>102</sup> Milton Finley, *The Most Monstrous of Wars: The Napoleonic Guerilla War in Southern Italy, 1806-1811* (Columbia, SC: University of South Carolina Press, 1994) 32.

<sup>103</sup> Clausewitz, 107, 120, 132, 144, 367, 375, 409, 449, 634 and Jomini, 30, 83, 84, 173.

<sup>104</sup> Chandler, 206.

<sup>105</sup> Jomini, 169-171.

<sup>106</sup> Rothenberg, 61.

<sup>107</sup> Ibid, 76.

This kept the battlefield areas relatively small, usually less than 6 Kilometers wide.<sup>108</sup> This led to theories of war in that era which focused on the decisive battle or the so-called strategy of the single point.<sup>109</sup> However, the greater size of the armies also gave them a greater durability allowing them to fight for longer periods of time and over an ever-growing territorial expanse.<sup>110</sup> The strategy of the single point did not preclude the fighting of related, noncontiguous battles. The battles of Ulm and Austerlitz<sup>111</sup> are examples of sequential noncontiguous battles while the battles of Jena and Auerstadt<sup>112</sup> are examples of simultaneous noncontiguous battles. These types of campaigns were a reflection of the growth in the size of the armies.<sup>113</sup>

In the Napoleonic era, information superiority provided an advantage over ones antagonist.<sup>114</sup> Combatants of this period used a variety of means to collect information. Along with their role of providing security, cavalry performed reconnaissance and surveillance missions.<sup>115</sup> For information gathering at the strategic level or beyond the range of cavalry patrols, combatants made liberal use of spies and informants.<sup>116</sup> Guides and personal reconnaissance were very important during this period because of the low quality and lack of availability of maps for most regions.<sup>117</sup> In addition to information gathered by their cavalry, commanders usually conducted

---

<sup>108</sup> Ibid, 62.

<sup>109</sup> James J. Schneider, *Vulcan's Anvil: The American Civil War and the Emergence of Operational Art* (Fort Leavenworth, KS: Command and General Staff College, 1991) 1.

<sup>110</sup> Robert M. Epstein, *Napoleon's Last Victory: 1809 and the Emergence of Operational Art* (Fort Leavenworth, KS: Command and General Staff College, 1992) 5.

<sup>111</sup> Chandler, 381-433.

<sup>112</sup> Chandler, 479-502.

<sup>113</sup> Rothenberg, 61.

<sup>114</sup> Ibid, 209.

<sup>115</sup> Ibid, 211-212.

<sup>116</sup> Ibid, 209-210.

<sup>117</sup> Ibid, 211.

personal reconnaissance of most of the battlefield given their relatively small size.<sup>118</sup> Before the battle, commanders normally selected an observation point that allowed them to see the majority of the battlefield and particularly the most important points.<sup>119</sup>

Staffs normally assisted commanders with the gathering, processing, analyzing, and dissemination of information.<sup>120</sup> The processing and analysis of information was limited to the minds of the staff and most importantly the commander. The French had the most advanced staff organization of the day.<sup>121</sup> Napoleon organized his staff into three main groups, the Household, the General Staff of the Grand Army, and the Commissary of Army, which he used to provide the French Armies with a superior system of command and control.<sup>122</sup> Napoleon served as the role model of genius in war for both Clausewitz<sup>123</sup> and Jomini.<sup>124</sup> Both theorists wrote extensively about the impact of genius in war. When a genius was not available, the weight of responsibility fell more heavily on the staff.<sup>125</sup>

While the organization of staffs had progressed over previous periods, the means of communications remain limited. The commander and staff's ability to disseminate information over long distances was limited to visual signals or messenger.<sup>126</sup> The limited training and education of staffs coupled with the limited technology available at the time meant that

---

<sup>118</sup> Chandler, 1065.

<sup>119</sup> Ibid, 1083-1084.

<sup>120</sup> Rothenberg, 210.

<sup>121</sup> Ibid, 209.

<sup>122</sup> Chandler, 368.

<sup>123</sup> Clausewitz, 100.

<sup>124</sup> Jomini, 52.

<sup>125</sup> Ibid, 57.

<sup>126</sup> Rothenberg, 211.

commanders of genius had a remarkable influence on the outcome of conflicts.<sup>127</sup> In fact, his reach was constrained primarily by the limited reach of the available command and control technology of the era.

Napoleon's genius at waging war is more of a reflection of his ability to synthesize and exploit the developments of others rather than personal innovations.<sup>128</sup> In this sense, his intellect and aptitude were decisive in setting him apart from the competition and his superiority did not result from technological or material superiority.<sup>129</sup> The combatants were roughly equal in technology during the Napoleonic era in that none of the combatants had a clear superiority and none discovered a wonder weapon or technological panacea to solve their battlefield challenges.<sup>130</sup>

The operational environment evolved continuously before, during, and after the Napoleonic era, just as it always has. However, the dramatic and revolutionary changes resulted from a confluence of trends within each of the six dimensions that a man of genius, Napoleon, exploited to great advantage. Once Napoleon's methods and organizations spread throughout the rest of Europe and his antagonists adopted, if they did not master them, he was unable to repeat his earlier victories. Major General Carl von Clausewitz and Baron Henri Antoine de Jomini, the leading military theorists of the post Napoleonic era, carefully analyzed the revolution in military affairs (RMA) that occurred in this era and developed theories that have continued to influence military theory to this day. The U.S. Army still uses many of the concepts they developed and expanded on in its elements of operational design today.

---

<sup>127</sup> Jomini, 58.

<sup>128</sup> Rothenberg, 28.

<sup>129</sup> Ibid, 28.

<sup>130</sup> Ibid, 28.

## CHAPTER FIVE

### ORIGINS OF THE ELEMENTS OF OPERATIONAL DESIGN

This section will examine the origins of the elements of campaign design and operational art in light of the operational environment extant in the Napoleonic era. It will identify the historical origins of selected elements of operational design as developed by Clausewitz and Jomini. This will allow for a fuller understanding of the original meanings of the terms and concepts underlying modern campaign planning. It is important to understand these terms and concepts historically to fully appreciate their relation to each other within both writers' complete theoretical construct as well as their application within the operational environment of the Napoleonic era. Historical understanding is the prerequisite for assessing their continuing validity as the theories have evolved and been applied doctrinally.

Major General Carl von Clausewitz and his contemporary, Baron Henri Antoine de Jomini are the two most influential military theorists with respect to the development of doctrine in the U.S. Army.<sup>131</sup> The majority of the elements of operational design trace their origins from their writings.<sup>132</sup> Both Jomini and Clausewitz used historical analysis to develop their theories and drew from the concepts and writings of earlier military theorists.<sup>133</sup> However, since historians<sup>134</sup> and military professionals<sup>135</sup> view the Napoleonic era as a revolution in military affairs, most contemporary doctrinal concepts began with the interpretation of one of these theorists.<sup>136</sup> This

---

<sup>131</sup> Bond, 3.

<sup>132</sup> COL William W. Mendel, “Operational Logic: Selecting the Center of Gravity,” *Military Review* (June 1993): 3.

<sup>133</sup> Jomini, ix and Clausewitz, 297.

<sup>134</sup> Bellamy, 41.

<sup>135</sup> MG Werner Widder, “Auftragstaktik and Innere Fuhrung: Trademarks of German Leadership”, *Military Review* (September-October 2002): 4.

<sup>136</sup> COL James K. Greer, “Operational Art for the Objective Force,” *Military Review* (September-October 2002): 22.

examination starts with “end state” which is a concept that predates both Clausewitzian and Jominian theories but which both writers addressed.

Though they did not develop the concepts, both Jomini and Clausewitz address concepts similar to “end state” and “military conditions” in their theories. The term “end” is synonymous with the terms aim, design, goal, intent, intention, object, objective, and purpose.<sup>137</sup> When Jomini and Clausewitz used these terms, they very often were addressing one of these two concepts.

Jomini opens his work *The Summary of the Art of War* with a chapter on the “object of the war.”<sup>138</sup> In this chapter, he discusses ten different types of wars such as “Offensive Wars to Recover Rights,”<sup>139</sup> which equates to the political objective or strategic end state of the type of war. In each of these “Articles,”<sup>140</sup> Jomini describes a means for achieving the end state by providing examples of the military conditions necessary to fulfill the strategic end state. For example, in the case of an “Offensive War to Recover Rights” Jomini advises,

The most natural step would be to occupy the disputed territory: then offensive operations may be carried on according to circumstances and to the respective strength of the parties, the object being object being to secure the cession of the territory by the enemy, and the means being to threaten him in the heart of his own country.<sup>141</sup>

Jomini’s articles covering the end states and supporting military conditions were prescriptive and not all inclusive. They provided examples illustrated by contemporary and historical examples that contemporary readers would appreciate.<sup>142</sup> Through out his works, Jomini advocates the conquest or acquisition of territory as a military means to achieve the political

---

<sup>137</sup> Roget's Interactive Thesaurus, First Edition (v 1.0.0), (Lexico Publishing Group, LLC., 2003). Available at <http://thesaurus.reference.com/help/faq/roget.html>.

<sup>138</sup> Jomini, 14-38.

<sup>139</sup> Ibid, 16.

<sup>140</sup> Ibid, 9.

<sup>141</sup> Ibid, 16.

<sup>142</sup> Ibid, 16.

object by providing a bargaining chip for use on war termination.<sup>143</sup> He did not focus on the destruction of an opponent's army.

As opposed to Jomini, Clausewitz took a broader and more philosophical view. In his opening gambit, he claims, "the aim of warfare is to disarm the enemy."<sup>144</sup> He follows by stating,

If the enemy is to be coerced you must put him in a situation that is even more unpleasant than the sacrifice you call on him to make. The hardships of that situation must not of course be merely transient – at least not in appearance.<sup>145</sup>

Later he stated that to achieve the political objective or strategic end state the military conditions could, in addition to outright defeat,

Range from the destruction of the enemy's forces, the conquest of his territory, to a temporary occupation or invasion, to projects with an immediate political purpose and finally to passively awaiting the enemy's attacks.<sup>146</sup>

Clausewitz continues his discussion on the linkage of military conditions to strategic end state and subsequently to the political objective in war in Book Eight, "War Plans."<sup>147</sup> In this book, he elaborates on and reiterates the themes in Book One. He describes the military conditions and end states associated with offensive and defensive wars with limited aims as well as wars "designed to lead to the Total Defeat of the Enemy."<sup>148</sup> While current doctrine does not elaborate on the concepts or provide plethora of historical examples that Clausewitz and Jomini do, all of them addressed the concepts of end state and military conditions. However, unlike contemporary doctrine and Clausewitz, Jomini does not address the concept of the center of gravity.

---

<sup>143</sup> Ibid, 22.

<sup>144</sup> Clausewitz, 77.

<sup>145</sup> Ibid, 77.

<sup>146</sup> Ibid, 94.

<sup>147</sup> Ibid, 577-640.

<sup>148</sup> Ibid, 611-612, 613-616, 617-640.

The U.S. Army's use of the term center of gravity is clearly a Clausewitzian one. Jomini does not use the term in his works. The U.S. Army defines a center of gravity as, "Those characteristics capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight."<sup>149</sup> Clausewitz expresses his view as "the hub of all power and movement, on which everything depends."<sup>150</sup> Clausewitz uses this term as an analogy drawn from Newtonian mechanical physics.<sup>151</sup> He initially equates the center of gravity or center of mass of a military force with that of a physical object.<sup>152</sup> Later he expands this analogy beyond the center of gravity and relates it to the application of force in broader terms.<sup>153</sup> His use of this concept answers the question of where or against what to apply military force when ones resources or ability to apply force is limited as it always is in reality.<sup>154</sup>

In the Clausewitzian paradigm, the center of gravity concept was predominantly force oriented with a secondary orientation on geographical positioning. Clausewitz uses armies, leaders, alliance, and public opinion as force-oriented examples and only provides one example of a terrain oriented center of gravity and that is political capitals.<sup>155</sup> Though Jomini does not use the term center of gravity, he seeks to answer the question of how to prioritize the application of ones inherently limited resources within the context of his bewildering taxonomy of points.

In the Jominian paradigm, he used a primarily terrain oriented and not force oriented approach. When discussing strategic points, which roughly equated to the center of gravity

---

<sup>149</sup> Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, Joint Electronic Library, (Washington, D.C.: US Government Printing Office, 1 September 2001), 80.

<sup>150</sup> Clausewitz, 595-596.

<sup>151</sup> Ibid, 485.

<sup>152</sup> Ibid, 485.

<sup>153</sup> Ibid, 485.

<sup>154</sup> Ibid, 596.

<sup>155</sup> Ibid, 596.

concept, Jomini divided them into two categories – geographical and maneuver.<sup>156</sup> His geographical strategic points were the equivalent of a terrain oriented Clausewitzian center of gravity. Both theorists used the example of an enemy's political capital to illustrate these concepts and terms.<sup>157</sup> Jomini referred to a force oriented center of gravity as a strategic "objective points of maneuver" and stated that "their positions depend upon, the situation of the hostile masses."<sup>158</sup> Though the terminology is different, both theorists arrived at similar conceptual conclusions based on their analysis of the Napoleonic era.<sup>159</sup> Whereas the term center of gravity had a Clausewitzian origin, the term decisive point started as part of the Jominian taxonomy of points and lines.

The U.S. Army defines a decisive point as "A geographic place, specific key event, critical system, or function that allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of an attack."<sup>160</sup> This definition closely parallels Jomini's description in terms of the decisive point being geographical in nature combined with a temporal element that provides a marked advantage.<sup>161</sup> While contemporary doctrine draws a clear distinction between center of gravity and decisive point, Jomini probably viewed them as being part of a continuum or taxonomy from strategic to tactical level.<sup>162</sup> In this regard, Clausewitz

---

<sup>156</sup> Jomini, 88.

<sup>157</sup> Clausewitz, 596, and Jomini, 88.

<sup>158</sup> Jomini, 88-89.

<sup>159</sup> Michael I. Handel, *Masters of War: Classical Strategic Thought* 3<sup>rd</sup> Revised and Expanded Addition (London: Frank Cass Publishers, 2001) 54-55.

<sup>160</sup> JP 1-02, 144.

<sup>161</sup> Jomini, 70.

<sup>162</sup> Handel, 365 and Jomini, 70.

starts with a Jominian approach but he kept the term decisive point more at the tactical level and therefore his taxonomy is easier to follow in some regards.<sup>163</sup>

While Clausewitz did not explain his view of the decisive point with as much clarity as Jomini, he did elucidate similar characteristics for the decisive point. For both theorists, decisive points subsequently became objectives – a construct continued in contemporary doctrine.

Clausewitz emphasizes that the decisive point is the most important one on the field of battle.<sup>164</sup>

He claimed that it was where a commander should concentrate his force.<sup>165</sup> Clausewitz recognized that gaining superiority at the decisive point required a relative and not absolute, overall advantage.<sup>166</sup> He believed that it could be determined before the battle.<sup>167</sup> For both Clausewitz and Jomini, the decisive point answered the question of where to concentrate ones forces.<sup>168</sup> Like decisive points, Jomini's theories were also the origin of the concept of lines of operations though Clausewitz mentions the concept as well.

In his maxims on lines of operations, Jomini started by linking them to centers of gravity or as he termed it, “objective points” via decisive points when he stated,

If the art of war consists in bringing into action upon the decisive point of the theater of operation the greatest possible force, the choice of the line of operations, being the primary means of attaining this end, may be regarded as the fundamental idea in a good plan of a campaign.<sup>169</sup>

---

<sup>163</sup> Christopher Bassford, “Jomini and Clausewitz: Their Interaction”; available from <http://www.clausewitz.com/CWZHOME/Jomini/JOMINIX.htm> Internet, accessed 09 February 2003.

<sup>164</sup> Clausewitz, 197.

<sup>165</sup> Ibid, 197.

<sup>166</sup> Ibid, 196.

<sup>167</sup> Ibid, 197.

<sup>168</sup> Clausewitz, 197, Jomini, 70.

<sup>169</sup> Jomini, 114.

Jomini asserts, “The objective point will be determined upon in advance.”<sup>170</sup> He expounded on his assertion when he described the impact of terrain and enemy forces on developing a line of operations. Jomini declared, “The direction to be given to this line depends upon the geographical situation of the theater of operations, but still more upon the position of the hostile masses upon this strategic field.”<sup>171</sup> For Jomini, lines of operations were physical or geographical, and not logical. Along with defining lines of operations, Jomini wrote extensively on interior and exterior lines of operations and claimed that interior lines offered an advantage.<sup>172</sup> Clausewitz also discussed lines of operations.

Clausewitz discusses interior and exterior lines of operations but emphasizes that the advantage accrued from one or the other is dependant on many factors and not based purely on geometrical relationships.<sup>173</sup> He discussed the various time and space relationships regarding interior and exterior lines and their relationship to convergent and divergent operations as well as how they differ at the strategic and tactical levels along with their relationship to offensive and defensive operations.<sup>174</sup> Other than disparaging lines of operations as an area unworthy of study in constructing a theory of war, Clausewitz said very little about them.<sup>175</sup> However, he did discuss lines of retreat and communications.<sup>176</sup> His focus on lines of communications probably assisted in the development of his concept of culminating point, which was a term Jomini did not use in his theory of war.

---

<sup>170</sup> Ibid, 114.

<sup>171</sup> Ibid, 114-115.

<sup>172</sup> Ibid, 127.

<sup>173</sup> Clausewitz, 135-136.

<sup>174</sup> Ibid, 367-369.

<sup>175</sup> Clausewitz, 183.

<sup>176</sup> Ibid, 345.

Clausewitz wrote two chapters on culminating points, one the culminating point of attack, and one the culminating point of victory.<sup>177</sup> In both of these chapters, he referred to culmination as something that occurs to the attacker as his strength diminishes in relation to the defenders.<sup>178</sup> Clausewitz portrayed the culminating point, as the point an antagonist passed at his peril for to proceed beyond it would result in a disproportionate failure of a continued attack.<sup>179</sup> Clausewitz amplified his cautionary note and provided a detailed discussion on why the attacker always reaches a culminating point because of proportionally greater losses in relation to the defender.<sup>180</sup> The contemporary doctrinal definition of the offensive culminating point coincides closely with how Clausewitz defined the concept.

Clausewitz' definition of defensive culmination differs significantly from the contemporary U.S. Army definition. At one point, Clausewitz referred to a defensive culmination as the point at which the defender no longer gained by waiting and should transition to the attack.<sup>181</sup> He did not suggest a polarity between the two and there does not appear to be a theoretical linkage or parallel application of concepts. Clausewitz clearly viewed culmination as affecting the attacker and leading to an operational pause due to limited operational reach.

The concepts of operational reach and operational pauses relate directly to the concept of culmination. A commander can chose an operational pause before reaching the culminating point or he faces the possibility of a reverse.<sup>182</sup> The French Revolutionary armies dramatically altered the conventional wisdom in Western Europe of the concept of operational reach. Napoleon took advantage of the revolutionary fervor and abandoned the ancient regime armies' dependency on

---

<sup>177</sup> Ibid, 528 and 566.

<sup>178</sup> Ibid, 528.

<sup>179</sup> Ibid, 570.

<sup>180</sup> Ibid, 566-570.

<sup>181</sup> Ibid, 383.

<sup>182</sup> Ibid, 566.

fixed magazines and wagon based logistics.<sup>183</sup> His use of scavenging and foraging allowed his armies to move faster and farther than his opponents.<sup>184</sup> This newly rediscovered form of logistics forced a reassessment of the operational reach of armies.

Jomini's discussions on logistics focused on how to extend the operational reach of an army.<sup>185</sup> Clausewitz addressed similar issues in his discussions on lines of communications.<sup>186</sup> Both theorists stressed the importance of logistics preparation and the necessity to ensure one had the operational reach, with or without operational pauses, necessary to achieve the strategic objective before reaching the culminating point.<sup>187</sup> Neither theorist used the terms operational reach or operational pause but each discussed its essence using different terms. Similarly, neither theorist used the terms operational approach, direct approach, or indirect approach. However, both discussed comparable concepts.

Jomini coined two terms that parallel the terms direct and indirect approach. His use of the terms lines of operations was akin to the direct approach and lines of maneuver was similar to the indirect approach. Jomini usually described his concepts in spatial or geographic terms and he left it to the reader to extrapolate them to other dimensions. His description of the indirect approach was no different. He described "strategic lines of maneuver" as one today would describe a physical, geographical, or spatial indirect approach.<sup>188</sup> In like manner, he described the direct approach in spatial terms in his section on lines of operations.<sup>189</sup> Even though Jomini touched on concepts analogous to the direct and indirect approach, he left the impression that,

---

<sup>183</sup> Rothenberg, 129-130

<sup>184</sup> Chandler, 502-506.

<sup>185</sup> Jomini, 252.

<sup>186</sup> Clausewitz, 345-348.

<sup>187</sup> Clausewitz, 573, and Jomini, 264.

<sup>188</sup> Jomini, 128-132.

<sup>189</sup> Ibid, 100-128.

given state of war in Western Europe, in the post Napoleonic Era, the direct approach worked most often.<sup>190</sup>

Like Jomini, Clausewitz did not use the terms operational approach, direct approach, or indirect approach but he did discuss parallel concepts using other terms. Some historians and military theorists have criticized Clausewitz for over emphasizing the direct approach at the expense of the indirect approach.<sup>191</sup> Others have defended his emphasis on the direct approach in light of his historical context and analysis of the Napoleonic era.<sup>192</sup> Clausewitz clearly stated his views on the indirect approach on his first page when he said,

Kind-hearted people might of course think there was some ingenious way to disarm or defeat an enemy without too much bloodshed, and might imagine this is the true goal of the art of war. Pleasant as it sounds; it is a fallacy that must be exposed: war is such a dangerous business that the mistakes which come from kindness are the very worst.<sup>193</sup>

Despite such an emphatic statement in his opening gambit, Clausewitz later qualified this when he said,

But there is another way. It is possible to increase the likelihood of success without defeating the enemy's forces. I refer to operations that have direct political repercussions, that are designed in the first place to disrupt the opposing alliance, or to paralyze it, that gain us new allies, favorably affect the political scene, etc. If such operations are possible it is obvious that they can greatly improve our prospects and that they form a much shorter route to the goal than the destruction of the opposing armies.<sup>194</sup>

Despite qualifying his initial assertion, the tone of *On War* clearly favored the direct approach and rejected the indirect approach as spurious and of dubious validity.

---

<sup>190</sup> Jomini, 209.

<sup>191</sup> B. H. Liddell Hart, *Thoughts on War* (London: Faber and Faber, 1944) 33.

<sup>192</sup> Handel, 140.

<sup>193</sup> Clausewitz, 75.

<sup>194</sup> Clausewitz, 92-93.

Both Clausewitz and Jomini touched on concepts similar to the contemporary definitions of operational approach, direct approach, and indirect approach, though neither theorist developed them to the extent that previous or subsequent theorists did. For example, Sun Tzu discusses direct and indirect methods extensively.<sup>195</sup> In an example of the latter, B. H. Liddell Hart theories consistently advocate the indirect over the direct approach.<sup>196</sup> Like the concept of the operational approach, Clausewitz and Jomini addressed simultaneous and sequential operations but using different terms.

Of the two theorists, Clausewitz was perhaps the clearer of the two with regard to the twin concepts of simultaneous and sequential operations. Clausewitz provided his typically thorough and lucid discussion of the concept of simultaneity in his section titled, “War Does Not Consist of a Single Short Blow.”<sup>197</sup> In this section, he stated that in the ideal, an antagonist would employ all their means in a single blow or in simultaneous blows.<sup>198</sup> However, in his continued discussion he illustrates why this is not possible in reality.<sup>199</sup> Later he claimed that sequential and successive operations applied at the tactical levels while at the strategic level a commander sought simultaneity.<sup>200</sup> Clausewitz realized and stated that even if a commander successfully applied simultaneity, he still needed to conduct sequels to his initial operation and this required sustained, continuous, and successive efforts.<sup>201</sup> Contemporary concepts of simultaneous and sequential operations reflect the influence of Clausewitz

---

<sup>195</sup> Sun Tzu, *The Art of War*, translated by Ralph D. Sawyer, (Boulder: Westview Press, 1994) 197-198.

<sup>196</sup> B. H. Liddell Hart, *Strategy* (New York: New American Library, 1974) 327.

<sup>197</sup> Clausewitz, 79.

<sup>198</sup> Ibid, 79.

<sup>199</sup> Ibid, 79.

<sup>200</sup> Ibid, 206.

<sup>201</sup> Ibid, 209.

In contrast to Clausewitz, Jomini did not clearly articulate the principle of simultaneity. However, as part of his characterization of the “fundamental principle of war” he stated that an antagonist should arrange “to throw by strategic movements the mass of an army, successively, upon the decisive points.”<sup>202</sup> He subsequently added, “To so arrange that these masses shall not only be thrown upon the decisive point, but that they shall engage at the proper times and with energy.”<sup>203</sup> Jomini stated, in broader and more ambiguous terms, the concept of strategic simultaneity and tactical sequence. His first statement also implied a need for sequels and successive operations following simultaneity at the decisive point. While Jomini and Clausewitz recognized the importance of massing in time via simultaneity, they also recognized the practicality and need for sequential operations. However, the concepts of linearity and nonlinearity would have confounded them since it was completely outside the paradigm of Napoleonic warfare.

Napoleonic warfare typified tactically linear and strategically noncontiguous operations. At the tactical level, it was linear but at the strategic and operational level, it was noncontiguous. The battle of Jena-Auerstadt typified this type of warfare.<sup>204</sup> Contiguity is a necessary but not sufficient prerequisite for linearity. At each level of war, there existed a different combination of contiguity and linearity. Not until World War I did warfare become strategically, operationally, and tactically contiguous and hence linear.<sup>205</sup> Even then, circumstances restricted this phenomenon to the western front.<sup>206</sup> Nevertheless, Jomini and Clausewitz addressed issues tangential to contiguity and linearity.

---

<sup>202</sup> Jomini, 70.

<sup>203</sup> Jomini, 70.

<sup>204</sup> Chandler, 479-501.

<sup>205</sup> Bellamy, 79.

<sup>206</sup> Ibid, 79.

Jomini advocated a system of lines of operation that led to a single decisive point.<sup>207</sup> He described several means of achieving this goal with his discussion of interior and exterior lines.<sup>208</sup> His discussion included choosing a single line of operations, or choosing multiple lines of operation that converged, diverged, or were parallel.<sup>209</sup> Jomini also discussed what he termed zones of operations, each of which offered a commander multiple lines of operations.<sup>210</sup> He suggested there might be multiple zones of operation within a theater of operations.<sup>211</sup> Jomini's writings expressed some of the fundamental considerations a commander might use in choosing between linear and nonlinear and to a lesser degree between contiguous and noncontiguous operations. Not surprisingly, Clausewitz' treated and discussed these subjects in a comparable manner and he used similar terms.

Clausewitz urged a focus on a single line of operation with concentrated force if possible but realized this was not always achievable.<sup>212</sup> He recognized that multiple lines of operations, or secondary operations, would be required and could at times be advantageous.<sup>213</sup> Along with divergent lines of operations that led from contiguous to noncontiguous operations, he realized that armies might start noncontiguous and converge into contiguity.<sup>214</sup> Like Jomini, Clausewitz viewed war through the lens of history. Unfortunately, their view only encompassed a tactically linear and strategically noncontiguous for at least one of the antagonists. Similar to linearity, tempo is another concept that Jomini and Clausewitz addressed indirectly.

---

<sup>207</sup> Jomini, 70.

<sup>208</sup> Ibid, 101-103.

<sup>209</sup> Ibid, 101-103.

<sup>210</sup> Ibid, 100.

<sup>211</sup> Ibid, 100.

<sup>212</sup> Clausewitz, 617.

<sup>213</sup> Ibid, 619.

<sup>214</sup> Ibid, 617-619.

In contemporary parlance, the authors of FM 3-0 closely related the concept of tempo to the tenet of Army operations ‘initiative’.<sup>215</sup> In his chapters on the attack and the defense, Clausewitz discussed the concept of initiative and vaguely alluded to the concept of tempo.<sup>216</sup> Clausewitz stated, “In strategy as well as in tactics, the defense enjoys the advantage of terrain, while the attack has the advantage of initiative.”<sup>217</sup> He viewed the attacker as the one who established the tempo of the operation and as the one who sought to hasten it while the defender sought to slow the tempo.<sup>218</sup> Jomini addressed the concept of tempo in an even more limited fashion than did Clausewitz.

Jomini failed to discuss the concept of tempo directly but he did discuss several supporting concepts. He stated, “That especially in strategy the army taking the initiative has the great advantage.”<sup>219</sup> While he foresaw the advantage of the initiative, he failed to describe how to manipulate military activities over time to seize and retain that initiative. Perhaps Jomini’s preoccupation with the geographical and spatial relations in war caused his neglect of the temporal dimension.

Though not all the elements of operational design stem from the writings of Jomini and Clausewitz, key elements did. Clausewitz originated the of concepts of center of gravity and the culminating point, while Jomini provided contemporary doctrine with the concepts of decisive points and lines of operations.<sup>220</sup> While they did not originate the other elements, their theories influenced their development and they are interrelated to the concepts of Jominian and Clausewitzian origin. The elements of operational design are instrumental in how doctrine assists

---

<sup>215</sup> FM 3-0, 5-12.

<sup>216</sup> Clausewitz, 80-82.

<sup>217</sup> Ibid, 363.

<sup>218</sup> Clausewitz, 382-383.

<sup>219</sup> Jomini, 184.

<sup>220</sup> Greer, 22.

commanders in visualizing, describing, and directing campaigns.<sup>221</sup> These concepts are not fixed and none has been stagnant over time but instead other theorists and writers have furthered their evolution. Not least among these were the U.S. Army's doctrinal publications formerly known as the FM 100-5 series.

---

<sup>221</sup> FM 3-0, 5-6.

## CHAPTER SIX

# THE EVOLUTION OF OPERATIONAL DESIGN IN THE U.S. ARMY

The U.S. Army has long studied the writings of European theorists such as Jomini and Clausewitz and has traditionally incorporated many of their concepts into its doctrine.<sup>222</sup> This section traces the development of their concepts, incorporated as the elements of operational design, since the 1982 version of FM 100-5, Operations. It provides a linkage from the Napoleonic paradigm to the contemporary one. The 1982 version of *FM 100-5, Operations* reflected a rejection of the 1976 Active Defense doctrine<sup>223</sup> and return to a more classical approach to doctrine as reflected in the writings of Clausewitz and Jomini. The 1976 version did not address any of the current elements of operational design but the 1982 version renewed a trend of incorporating historically based concepts. This trend gathered momentum as the development of Airland battle doctrine evolved into the contemporary approach. It is important to review the evolution of the classical concepts in U.S. Army doctrine to fully appreciate how modern writers have adapted the terms to meet the requirements of the contemporary operational environment.

The 1982 version of *FM 100-5, Operations* integrated several of the historical concepts of Clausewitz. For example, the opening paragraphs of the chapter on the offense begins by paraphrasing Clausewitz' discussion on the offense and included a quote from *On War* to support its historical perspective. Additionally, Clausewitz is one of five historical military theorists listed as references for the development of the manual.<sup>224</sup> The manual also recognized the

---

<sup>222</sup> Department of the Army, U. S. Army Field Manual 100-5, *Operations*. (Department of the Army, Washington, D.C.: August 1982), 29.

<sup>223</sup> MAJ Paul H. Herbert, Leavenworth Papers Number 16, *Deciding What Has to be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations* (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army, CGSC, 1988) 2.

<sup>224</sup> FM 100-5, 1982, A-3.

concepts of the indirect approach and nonlinear operations.<sup>225</sup> Though it did not address them as elements of operational design, by its very nature, Airland battle considered the options and utility of simultaneous and sequential operations.<sup>226</sup> Additionally, the terms end state and decisive points do not appear in the text but their conceptual underpinnings emerged in the discussions on strategic and operational objectives.<sup>227</sup> As noted earlier, while the origins of these concepts do not belong exclusively to Jomini or Clausewitz, but a study of their theories indicates they considered them when developing their theories. These awkward beginnings continued to grow in subsequent editions.

In the 1986 version, the U.S. Army continued the trend began in the 1982 version. It continued and expanded on the concepts of the aforementioned elements of operational design and added an in depth discussion on three ideas supportive of the emergent view on concepts of operational design. The 1986 version incorporated an appendix that covered the “Key Concepts of Operational Design” and included a discussion of the center of gravity, lines of operation, and culminating points. This appendix largely reflected the concepts and terminologies used in Clausewitz’ On War but the discussion of lines of operations reflected Jomini’s influence as well.<sup>228</sup>

The discussion on the center of gravity quoted a Clausewitzian definition and summarized his theoretical discussions.<sup>229</sup> The text provided a modern exposition of the concept and stated, “The

---

<sup>225</sup> Ibid, 8-1, 1-1.

<sup>226</sup> Ibid, 7-2.

<sup>227</sup> Ibid, 7-3.

<sup>228</sup> Department of the Army, U. S. Army Field Manual 100-5, *Operations*. (Department of the Army, Washington, D.C.: May 1986), 179-182.

<sup>229</sup> Ibid, 179-180.

concept of centers of gravity is key to all operational design.<sup>230</sup> The discussion also declared that antagonists were complex organisms. The manual concluded,

Identification of the enemy's center of gravity and the design of actions which will ultimately expose it to attack and destruction while protecting our own, are the essence of the operational art.<sup>231</sup>

The 1986 manual marked the beginning of the explicit adoption of this concept for operational design. The U.S. Army has left the concept virtually unchanged since its inception nearly twenty years ago.

This version also manifested the first formal inclusion of the concept of lines of operation as an element of operational design. It stated,

Lines of operation define the directional orientation of a force in relation to the enemy. Lines of operation connect the force with its base or bases of operation on the one hand and its operational objective on the other.<sup>232</sup>

This definition articulated Jomini's concept. An example from the Napoleonic era illustrated this concept.<sup>233</sup> The appendix also covered the supporting concepts of interior, exterior, single, and multiple lines of operation.<sup>234</sup> This concept reinforced the tendency to view operational level campaign design through the paradigm of the Napoleonic era's theoretical approach.

The U.S. Army adopted the Clausewitzian paradigm when it defined the concept of culminating points.<sup>235</sup> Doctrine stated,

Unless it is strategically decisive, every offensive operation will sooner or later reach a point where the strength of the attacker no longer significantly exceeds

---

<sup>230</sup> Ibid, 179.

<sup>231</sup> Ibid, 180.

<sup>232</sup> Ibid, 180.

<sup>233</sup> Ibid, 180.

<sup>234</sup> Ibid, 180-181.

<sup>235</sup> Ibid, 181.

that of the defender, and beyond which continued offensive operations therefore risk overextension, counterattack, and defeat.<sup>236</sup>

The discussion that followed reflected the Clausewitz's discussion on the both the culminating point of victory and the culminating point of the attack.<sup>237</sup> At this stage in its doctrinal development, the U.S. Army, like Clausewitz, did not recognize the need to define the concept of defensive culmination. The U.S. Army emplaced the more of the basic concepts for the contemporary elements of operational design with the inclusion of these three concepts in its 1986 version of *FM 100-5, Operations*.

The 1993 version of *FM 100-5, Operations*, formally added the final three expressions: end state and military conditions; decisive points and objectives; and tempo, used as elements of operational design in the current *FM 3-0, Operations*. The 1993 manual defined the concept of “strategic end state and supporting military conditions” as “the required conditions that, when achieved, attain the strategic objectives or pass the main effort to other instruments of national power to achieve the final strategic end state.”<sup>238</sup> This definition supplants the primacy of the center of gravity from previous concepts by stating, “Determining the end state and ensuring that it accomplishes the national objectives are the critical first steps in the operational planning process.”<sup>239</sup> Though previous versions had alluded to this concept, this manual stated the concept explicitly.

The 1993 manual also added the concept of the decisive point to the operational level lexicon for visualizing campaign design. The section entitled, “Concepts of Theater and Operational Design” started by stating,

---

<sup>236</sup> Ibid, 181.

<sup>237</sup> Ibid, 181-182.

<sup>238</sup> Department of the Army, U. S. Army Field Manual 100-5, *Operations*. (Department of the Army, Washington, D.C.: June 1993), 6-1.

<sup>239</sup> Ibid, 6-1.

Several key concepts of campaign design guide theater- and operational-level planners in their efforts. These include how to address the center of gravity, lines of operation, decisive points, and the culminating point.<sup>240</sup>

Though Clausewitz addressed the Jominian concept of lines of operations in his theories, he did not address Jomini's concept of decisive points. Likewise, Jomini did not address the Clausewitzian concept of centers of gravity. In this doctrinal publication, the U.S. Army mixed the two theories.

In the discussion on decisive points, it stated, "decisive points provide commanders with a marked advantage over the enemy and greatly influence the outcome of an action."<sup>241</sup> It subsequently described decisive points as geographical or physical and reinforced the idea that they were not centers of gravity but were "the keys to getting at centers of gravity."<sup>242</sup> Thus, the manual tried to link a Jominian concept with a Clausewitzian one and simultaneously avoided the bewildering taxonomy of points that Jomini constructed.

The U.S. Army added the term tempo to the manual as a characteristic of the offense but not as an element of operational design. However, the doctrinal description of tempo incorporated the same definition and description as the current element of operational design. Both defined tempo, as "the rate of speed of military action; controlling or altering that rate is essential for maintaining the initiative."<sup>243</sup> Though the term tempo is a relatively recent, U.S. Army doctrine has long stressed speed as an important consideration in military operations.<sup>244</sup> Despite the change in terms, the elevation of tempo to an element of operational design awaited the publication of *FM 3-0, Operations*.

---

<sup>240</sup> Ibid, 6-1.

<sup>241</sup> Ibid, 6-7.

<sup>242</sup> Ibid, 6-7 – 6-8.

<sup>243</sup> FM 100-5, 1993, 7-2 and FM 3-0, 5-12.

<sup>244</sup> FM 100-5, 1982, 2-6.

Despite the U.S. Army discussing them as planning considerations, the elevation of the related concepts of sequential and simultaneous operations to the level of elements of operational design also depended on the subsequent version. The 1993 version did not articulate the terms operational reach and pauses separately from the concept of the culminating point. It also dropped the concepts of the indirect approach and nonlinear warfare, the former a supporting concept for operational approach and latter, part of the ‘linear and nonlinear operations’ concept. Despite dropping several previous concepts, U.S. Army doctrine now included all the elements of operational design that they would subsequently consolidate and include in the 2001 version of *FM 3-0, Operations*.

As the U.S. Army developed its concepts for operational art over the last twenty years, it also developed elements of operational design. Though the number of concepts and terms has increased, they all retain a common origin from the Napoleonic era and the theories of Jomini and Clausewitz. The paradigm of the era in which these theorists created them delimits these theories to applicability under the conditions of the operational environment that spawned them. In a similar operational environment, using these elements of operational design, the U.S. Army and the rest of the Joint services created a campaign planning methodology.

## CHAPTER SEVEN

### ELEMENTS OF OPERATIONAL DESIGN IN CAMPAIGN PLANNING

This section will describe how the key principles of Clausewitz and Jomini, in modified form, are integrated into the current campaign planning methodology. Understanding the contemporary application of the elements derived from the Napoleonic era will facilitate assessing their continuing relevance in the Contemporary Operational Environment.

Joint Publication 5-0, *Doctrine for Planning Joint Operations*, is the keystone doctrinal publication that holistically described campaign planning. “It sets forth fundamental principles and doctrine that guide planning by the Armed Forces of the United States in joint or multinational operations.”<sup>245</sup> Joint doctrine classified planning into two broad categories, Force Planning and Joint Operations Planning.<sup>246</sup> JP 5-0 described Force Planning as the “creation and maintenance of military capabilities.”<sup>247</sup> JP 5-0 did not elaborate on this type of planning and the elements of operational design are explicitly applicable only to the second type of planning, Joint Operations Planning.

Joint doctrine defined Joint Operations Planning as “directed toward the employment of military forces within the context of a military strategy to attain specified objectives for possible contingencies.”<sup>248</sup> Additionally, it stated that Joint Operations Planning focused on the operational level and not the strategic level of war.<sup>249</sup> Joint doctrine further subdivided Joint Operations Planning into five subcategories.

---

<sup>245</sup> Joint Publication 5-0, *Doctrine for Planning Joint Operations*, (Joint Electronic Library, Washington, D.C.: US Government Printing Office, April 1995), i.

<sup>246</sup> Ibid, I-1.

<sup>247</sup> Ibid, I-1.

<sup>248</sup> Ibid, I-1.

<sup>249</sup> Ibid, I-2.

These five subcategories included mobilization planning, deployment planning, employment planning, sustainment planning, and redeployment planning.<sup>250</sup> JP 5-0 characterized mobilization planning as “assembling and organizing national resources to support national objectives.”<sup>251</sup> It described deployment planning as “planning to move forces and their sustainment resources from their original locations to a specific operational area.”<sup>252</sup> Joint doctrine classified the reverse process as redeployment planning which also included the deployment from one operational theater to another for further employment.<sup>253</sup> Doctrine expressed sustainment planning as “providing and maintaining levels of personnel, materiel, and consumables” required for prolonged employment.<sup>254</sup> While Clausewitz and Jomini both addressed, with varying degrees of completeness, all these processes in their separate theories, both writers, as well as contemporary doctrine, predominantly focused on the employment planning for military forces.

Joint doctrine defined employment planning as “how to apply force/forces to attain specified military objectives.”<sup>255</sup> This focus on military as opposed to political objectives further limited the scope of applicability to that covered by military theorists like Jomini and Clausewitz. Joint Publication 5-0 referred interested readers to Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, for the level of detail required by this study since it covers the specific procedures of campaign planning.<sup>256</sup>

---

<sup>250</sup> Ibid, I-3.

<sup>251</sup> Ibid, I-3.

<sup>252</sup> Ibid, I-3.

<sup>253</sup> Ibid, I-3.

<sup>254</sup> Ibid, I-3.

<sup>255</sup> Ibid, I-3.

<sup>256</sup> Ibid, II-21.

The elements of operational design represented the tools the U.S. Army and the Joint services used to design campaigns and major operations.<sup>257</sup> Doctrine is constantly changing so this analysis considered only approved doctrine. JP 5-00.1 Joint doctrine stated, “Theater-level campaign planning is mostly art. It is inextricably linked with operational art, most notably in the design of the operational concept for the campaign.”<sup>258</sup> JP 5-00.1, *Joint Doctrine for Campaign Planning* provided commanders the guidance on using the elements of operational design to develop concepts of the operation for employing joint forces.<sup>259</sup>

Joint Doctrine began the description of how to employ the elements of operational design by reminding its readers of the Clausewitz quote,

War plans cover every aspect of a war, and weave them all into a single operation that must have a single, ultimate objective in which all particular aims are reconciled. No one starts a war or rather, no one ought to do so without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it.<sup>260</sup>

The manual went on to describe, “The operational design process is primarily an intellectual exercise based on experience and judgment. The result of this process should provide the conceptual linkage of ends, ways, and means for the campaign.”<sup>261</sup> With that goal in mind, doctrine advised that,

The key elements of operational design are: (1) understanding the strategic guidance (determining the desired end state and military objectives(s)); (2) identifying the critical factors (principal adversary strengths, including the

---

<sup>257</sup> Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, (Joint Electronic Library, Washington, D.C.: US Government Printing Office, January 2002), II-1.

<sup>258</sup> Ibid, II-1.

<sup>259</sup> Ibid, Chapter II.

<sup>260</sup> Clausewitz, *On War*, as quoted in JP 5-00.1, II-1.

<sup>261</sup> Ibid, II-1.

strategic COGs, and weaknesses); and (3) developing an operational concept or scheme that will achieve the strategic objective(s).<sup>262</sup>

This led into a discussion that reinforced these three key elements under a discussion of strategic guidance.<sup>263</sup> It discussed their application across the full spectrum of operations from Military Operations Other Than War (MOOTW) to war.<sup>264</sup> It admonishes commanders that they were as important in the former as in the latter and emphasized the need to consider conflict termination from the inception of concept development.<sup>265</sup> This caution reflected primarily Clausewitz' and to a lesser degree Jomini's opening arguments in their theories of war.

Next, joint doctrine stressed the need to identify critical factors.<sup>266</sup> It began this section with a quote from Clausewitz advising that the first priority in war was to identify the center of gravity.<sup>267</sup> Doctrine then stressed the need to attack the enemy's center of gravity while protecting ones own.<sup>268</sup> JP 5-00.1 then provides a discussion of Dr. Strange's methodology<sup>269</sup> for attacking an opponent's center of gravity by identifying critical capabilities supported by critical requirements and have critical vulnerabilities that an antagonist can attack.<sup>270</sup> It reinforced the need to test these critical factors for validity as well as protecting ones own critical factors,

---

<sup>262</sup> Ibid, II-1.

<sup>263</sup> Ibid, II-1.

<sup>264</sup> Ibid, II-4 – II-5.

<sup>265</sup> Ibid, II-4.

<sup>266</sup> Ibid, II-5.

<sup>267</sup> Ibid, II-5.

<sup>268</sup> Ibid, II-5.

<sup>269</sup> Dr. Joe Strange, Centers Of Gravity And Critical Vulnerabilities: Building On The Clausewitzian Foundation So That We Can All Speak The Same Language, (Quantico, VA: Marine Corps University Foundations, 1996)

<sup>270</sup> JP 5-00.1, II-6 – II-11.

especially ones center of gravity.<sup>271</sup> This discussion guided commanders and assisted staffs in visualizing the campaign and an explanation of a method for expressing an operational concept followed.

The section reiterated the need for combatant commanders to describe how they intended to accomplish their broad vision of what needed accomplishing. It stressed the concept should contain “a scheme of when, where, and under what conditions the combatant commander intends to give or refuse battle.”<sup>272</sup> While acknowledging no proscribed checklist for operational concepts, doctrine addressed the concepts potential contents in terms of defeat mechanism, direct or indirect approach, decisive points, main effort, and sequence of operations including phasing, branches, and sequels. It also addressed culmination point, operational pauses, and synchronization.<sup>273</sup> This discussion reflected a close approximation of the terms as used in U.S. Army doctrine, FM 3-0, *Operations*. Joint doctrine applied the elements of operational design in a manner consistent with Army doctrine which itself is consistent with Jomini’s and Clausewitz’ theories of war.

In its essence both the Army and Joint processes owe their methodology to a combination between Jominian and Clausewitzian theories. First, the antagonist identified his enemy’s center or centers of gravity and then determined a series of decisive points that led conceptually or physically to that center of gravity and concentrated his forces along that path which formed the line of operation. If an antagonist lacked the operational reach to travel along that path without culminating then they needed to plan for an operational pause. The ability to conduct simultaneous or sequential operations depended on the antagonists’ resources, operational reach, and the range of his instruments along with the geometry of the theater of operations. Linearity,

---

<sup>271</sup> Ibid, II-9 – II-11.

<sup>272</sup> Ibid, II-11 – II-12.

<sup>273</sup> Ibid, II-12 – II-20.

contiguity, and tempo were relativistic and determined by the nature of the operational environment and the forces available to each contender. Both Joint and Army doctrine promoted this methodology as a procedure for arranging activities in time, space, purpose and prioritizing the employment of resources to achieve the military conditions most likely to create the end state that best served the national political interests.

## CHAPTER EIGHT

# ASSESSMENT

The U.S. Army assumed the theories and concepts developed by Jomini and Clausewitz were valid for the operational environment of the Napoleonic era. It transferred the concepts developed by Jomini and Clausewitz to its elements of operational design based on the assumption that they were still valid for the contemporary operational environment. This assumption of transfer validity relied, in part, on consistency between the operational environments. The U.S. Army also believed that where there were inconsistencies the concepts were still effective or they could modify them to retain their effectiveness.

## CONSISTENCY

Jomini and Clausewitz developed their theories of war from studying conflict in the Napoleonic era and their theories applied to that operational environment. Jomini clearly sought to divine universal principles of war that commanders could apply in any war.<sup>274</sup> Clausewitz also searched for eternal truths but qualified his theory by recognizing that war was ultimately a human endeavor and that theoreticians could not reduce it to algebraic formulae.<sup>275</sup>

The U.S. Army borrowed some of their key concepts based on the premise of their having discovered some fundamental principles and eternal truths and applied them to its campaign planning methodology in the contemporary operational environment. For this method to be valid and effective there must be transfer validity between the Napoleonic era operational environment and the contemporary operational environment. One means of judging transfer validity is to examine the degree of consistency between the two operational environments.

The Napoleonic era and the contemporary operational environments were partially consistent in the threat dimension. However, neither Jomini nor Clausewitz addressed the full spectrum of

---

<sup>274</sup> Jomini sought eternal principles

<sup>275</sup> Clausewitz, 148.

threats identified in the contemporary operational environment. Modern doctrine addressed and the classical theorists considered multi-state (empires, alliances, and coalitions), nation state, and to a lesser degree national sub-state actors in their operational environments. Their theories are consistent in this regard and the U.S. Army could rightly apply their conceptual tools to circumstances involving those types of threats.

In addition to the aforementioned threat dimensions, the contemporary operational environment also considered failed states, non-state, and transnational actors. Although Jomini and Clausewitz did not address them specifically by name, these threats fall under the general category of people's wars.<sup>276</sup> Both theorists dismissed these types of conflicts and focused their writings on wars between the regular, conventional armies of nation states.

Additionally, U.S. Army doctrine seeks to apply the conceptual tools they developed across the full spectrum of operations and against threats that fall well outside those envisioned by either Jomini or Clausewitz. These include all manner of threats and operations from war to humanitarian assistance, domestic support for environmental catastrophes, etc. For example, it is ludicrous to propose that a threat, particularly an inanimate object, such as a flooding river has a center of gravity that one could influence by a critical capability, critical requirements, critical vulnerability analysis, and subsequent attack.

As regards the political dimension, the Napoleonic era and the contemporary operational environments were only moderately consistent. U.S. Army as well as Joint doctrine, summarized Clausewitz' opening remarks on the primacy of the political objectives in war, which he further refined in his discussion on war planning.<sup>277</sup> Since U.S. Army and Joint doctrine addressed only the armed forces of a single nation state, it limited the scope of the discussion on the political

---

<sup>276</sup> Jomini, 29-36, and Clausewitz, 479-483.

<sup>277</sup> Clausewitz, 75-126, and 577-640.

dimension of war differently than did either Jomini or Clausewitz who sought to address any nation state with any type of governing system.

Neither Jomini nor Clausewitz addressed the political dimension of the employment of armed forces outside the context of war. However, in FM 1, *The Army*,<sup>278</sup> and JP 1, *Joint Warfare of the Armed Forces of the United States*,<sup>279</sup> doctrine provided a fuller expansion on the political relationship of military power to the other instruments of national power and their application in other than war situations. Jomini's and Clausewitz' limited their consideration to war and hence reduced the applicability of their theories to the realm of the employment of armies in war. This inconsistency in operational environment limits the applicability of the concepts for operational design.

The unified action dimension, which stated that the U.S. Army would operate in a joint, interagency, and multinational environment, is inconsistent with the operating environment of the Napoleonic era. The perspective of both theorists was that of a continental power involved predominantly in land combat and hence they do not consider joint<sup>280</sup> or interagency interoperability as part of their operational environment. However, both theorists take into account working with other nations or empires either in an alliance or in a coalition.<sup>281</sup> Conversely, some theorists have extended the work of Clausewitz and Jomini to other services, most notably Corbett<sup>282</sup> and Mahan<sup>283</sup>, respectively, to the maritime arena. In addition, Douhet,

---

<sup>278</sup> U.S. Army Field Manual 1, *The Army*. Department of the Army, Washington, D.C. June 2001.

<sup>279</sup> Joint Chiefs of Staff. Joint Publication 1-0, *Joint Warfare of the U.S. Armed Forces*. Washington: Joint Staff, 1995.

<sup>280</sup> Jomini subsequently added a supplement on maritime expeditions.

<sup>281</sup> Jomini, 18, and Clausewitz, 631-635.

<sup>282</sup> Sir Julian S. Corbett, *Some Principles of Maritime Strategy* Classics of Seapower series. (Annapolis, MD: Naval Institute Press, 1988).

<sup>283</sup> Captain Alfred Thayer Mahan, *The Influence Of Sea Power Upon History, 1660-1783*, (New York, Hill and Wang 1957).

Mitchell, and Warden have extended Clausewitzian theory and to a lesser degree Jominian theory to the employment of air power. While these theorists extended the scope of the original works, the joint services have not issued a unifying theory for joint, interagency, and multinational employment of armed forces across the full spectrum of operations.

U.S. Army doctrine for the land combat dimension of the contemporary operational environment is partially consistent with the operational environment in the Napoleonic era. Both Clausewitz and Jomini considered and wrote about sequential operations, contiguous, and noncontiguous operations. These concepts were within the bounds of the operational environment they experienced even if the scale of operations exceeded their experience. Additionally, each wrote of the need to consider the civilian or noncombatant populations of the territories over which one fought.<sup>284</sup>

While terrain has become more urbanized, it is no less complex or multidimensional now than in the Napoleonic era. Further, the duration of land combat remained within an order of magnitude of that experienced by Jomini and Clausewitz. Napoleonic era theorists would concur with U.S. Army's assessment of the contemporary operational environment of land combat as "repetitive and continuous" in nature and the relative "permanence" of land combat.<sup>285</sup> Again, emerging doctrine within the services dispute these claims based on the increasing capabilities of aerial weapon systems.<sup>286</sup>

U.S. Army doctrine describes land combat as the "salient feature of conflict"<sup>287</sup> which may not have been true even in the Napoleonic context of Clausewitz and Jomini. Arguably, the British Empire won, not on the merits of their land combat prowess, but based on their continued

---

<sup>284</sup> Jomini, xxx, Clausewitz, xxx.

<sup>285</sup> FM 3-0, 1-11.

<sup>286</sup> For example, BG David A. Deptula, "Effects Based Operations: Change in the Nature of Warfare", (Arlington, VA: Aerospace Education Foundation, 2001).

<sup>287</sup> FM 3-0, 1-11.

dominance of the seas, which allowed them to limit the war and fight on their own terms.<sup>288</sup>

Other environmental factors are different as well.

The modern day scope of land combat is no longer consistent with that of the Napoleonic era. The depth of the battlefield and operations has extended to global proportions the operational reach of antagonists. Further, the increased depth now permits simultaneous operations well beyond that imaginable to either Clausewitz or Jomini. The increased range of armed forces to project combat power offers a new theoretical paradigm for depth and simultaneous attack that may negate concepts such as geographical lines of operations and the need to attack decisive points sequentially enroute to a center of gravity<sup>289</sup>

The information dimension of the operational environments has changed dramatically since the Napoleonic era. Modern advances in communications, the rise of independent media, and greater trends in democratization, not to mention the rise in education of the general public and proportional growth in the body politic have led to an increased importance of information operations in support of warfare. The dramatic increase in the ability to collect, process, analyze, and disseminate information has led to a broader and more sophisticated requirement to consider the informational dimension.

While the ways and means have changed, the ability and desire of commanders to see first, understand first, and act first provided just as dramatic an advantage in the contemporary operational environment as in the Napoleonic era. In this regard, the information dimension remained consistent between the two eras.

There is partial consistency in the technological dimension between the two operational environments. Since both Jomini and Clausewitz largely limited their theoretical works to the realm of inter state warfare, the antagonists generally had relative parity in quality and quantity of

---

<sup>288</sup> Corbett, 2.

<sup>289</sup> COL John A. Warden III, "The Enemy as a System," *Airpower Journal*, Spring 1995, 41-55.

technological tools available to pursue armed struggles. In contrast, today's operational environment contains antagonists with orders of magnitude differential in both quality and quantity of technology available. Innovative or asymmetric ways of applying armed violence to achieve political objectives reflect a growing trend to offset the differential in means with equally disparate ways.

In summary, there is limited consistency between the Napoleonic era and the contemporary operational environments. The premise of saliency is of questionable validity in both operational environments but the land combat dimension remains largely consistent between both eras. The scope of the political, unified action, and information dimensions have increased over time but are within the parameters considered by Clausewitz and Jomini. However, the range of threats and the scope of technological variance faced by the U.S. Armed Forces far exceed that contemplated by Jomini and Clausewitz. Given such limited consistency, the U.S. Army must evaluate the effectiveness of the conceptual tools.

## **EFFECTIVENESS**

One can judge effectiveness on how well the conceptual tools allow commanders and staffs to visualize, describe and direct the arrangement of actions in time, space, purpose and allocate resources.<sup>290</sup> FM 3-0 stated that commanders used the elements of operational design in battle command to "exercise command in operations against a hostile, thinking enemy."<sup>291</sup> While this is consistent with the Napoleonic era theorists, it ignores all other threats to the successful employment of military forces to accomplish missions other than war. In MOOTW (Military Operations Other Than War), there may be no enemy, or at least not a hostile or thinking one, but there may be other threats to the accomplishment of the mission. In a domestic support operation, for example, the threat may be environmental such as a flooding river, a tornado, or a forest fire

---

<sup>290</sup> FM 3-0, 5-3.

<sup>291</sup> FM 3-0, 5-1.

to site but a few from recent operations. With that in mind, one must measure the effectiveness of the campaign design process in that context.

The process begins by determining the end state and supporting military conditions required to achieve the political objectives.<sup>292</sup> This allows the development of a purpose based hierarchy and organization that relates the overall aim to subordinate objectives. This framework of determining ends and supporting conditions is applicable across the full spectrum of operations. From this auspicious beginning, the process quickly lost congruency since it leaps to the concept of center of gravity, an enemy centric concept, without conceptual linkage to the end state or military conditions that the commander previously determined.

The purpose of center of gravity is that it provided a conceptual tool that allowed a commander to select portions of an enemy's systems and to prioritize his actions against those selected parts. This concept is sound and derives from Clausewitz' view that it is impractical for war to consist of a single blow.<sup>293</sup> It also provided a methodology to target the enemy's "power of resistance."<sup>294</sup> While one may address center of gravity in physical terms, its primary usefulness is as a conceptual framework for purpose or causality linkages. Additionally, this concept avoids the confusing hierarchy of Jominian points.

Regarding decisive points, both Clausewitz and the U.S. Army usurped Jomini's conceptual tool.<sup>295</sup> Decisive points extended the purpose-based hierarchy of the center of gravity to a lower level and allowed its linkage from a primarily conceptual to a predominantly physical construct. This physical manifestation provides the framework for most of the remaining of the spatial construct.

---

<sup>292</sup> FM 3-0, 5-1.

<sup>293</sup> Clausewitz, 79.

<sup>294</sup> Ibid, 77.

<sup>295</sup> Bassford, 2003.

The lines of operation concept originally allowed the linkage in the physical sense from the base of operations, through decisive points, to the objective. Acting or moving along this line in a physical sense imposed and necessitated a sequence to operations and thereby linked them temporally as well. FM 3-0 articulated a concept of “logical lines of operations” which attempted to overcome the physical limitations of the Jominian concept.<sup>296</sup> However, the concept is self-contradictory and therefore internally inconsistent given the basic definition of lines of operation.<sup>297</sup> Lines of operation are a Jominian concept that related time and space and the U.S. Army used the concept to relate to a Clausewitzian concept – the culminating point.

The culminating point connected resources to time and space and reflected a point where the attacker would have to recoil based on a lack of resources and over extension of the attack in time and space. This concept allows commanders to effectively visualize and anticipate where and when along the line of operation resources might preclude achievement of the goal. This resource inflection point establishes operational reach and requires an operational pause to prevent.

The concept of simultaneous and sequential operations relates the dimension of time to resources and purpose. Operational reach, the physical range of weapons, lack of resources, and the inherently sequential nature of cause and effect relationships limit the concept of simultaneity. Simultaneous and sequential operations provided a marginally effective extension of the elements of operational design to deal with the expanded reach of operations in time and space.

The concept of linear and nonlinear operations and the related ideas of contiguous and noncontiguous operations add little value or effectiveness to the elements of operational design. They describe internal conditions of the spatial relationship of friendly forces relative to themselves. The concept serves no useful function in relating actions in time, space, purpose, or resources to achieve the ends desired.

---

<sup>296</sup> FM 3-0, 5-9.

<sup>297</sup> Ibid, 5-7.

The concept of tempo relates actions over time to purposes and resources. Other than advocating faster rather than slower, this element of operational design added little to assist the commander in visualizing, describing, and directing military actions to achieve political objectives.

The current core of the elements of operational design from center of gravity to decisive points to lines of operations while considering the various aspects of culmination provide an effective tool for operational design within the constraints of conventional operations. However, it does not effectively address the needs of operations other than war where parties employ armed forces against other than a hostile, thinking enemy.

## CHAPTER NINE

# **CONCLUSION AND RECOMMENDATION**

The elements of operational design remain an effective tool for campaign planning in a war. In operations other than war, its derivation from a construct that did not consider the employment of armed forces outside of war limits its effectiveness. Additionally, many of the elements are mere extensions or corollaries to prime concepts and their inclusion as equal concepts confuse rather than clarify operational design. While the U.S. Army has made some adaptations of the original concepts to keep them current, the majority of elements do not account for the inconsistencies in the operational environment to retain the original level of effectiveness. Continued effectiveness requires the U.S. Army to modify certain elements.

The U.S. Army should replace the concept of logical lines of operations with another term or concept that fulfills the same function of relating sequence and prioritizing causality chains to the purpose hierarchy. Alternatively, it should change the definition of lines of operation to remove the physical and geographical references. The former option is preferred to maintain historical consistency.

Effects Based Operations as advocated in various Joint and U.S. Air Force publications offers a suitable construct to replace logical lines of operations as a methodology to relate the sequence of actions and to prioritize causality chains.<sup>298</sup> This approach would allow the retention of lines of operations in its historically useful role as a concept descriptive of physical or spatial relationships of operations and military actions over time. By avoiding mixing physical and causal concepts, joint campaign planners have a robust yet clear methodology for campaign design.

---

<sup>298</sup> Edward C. Mann, Gary Endersby, and Thomas R. Searle, *Thinking Effects: Effects Based Methodology for Joint Operations* (Maxwell Air Force Base: Air University Press, 1999).

Though Army doctrine discussed interior and exterior lines in sufficient detail to provide planners the clarity to apply the concepts in campaign design, however, it needed to expand the discussion on single and multiple lines of operations to state more explicitly the relationship of these concepts with other elements of campaign design. For example, if one chose a direct operational approach, there is by definition no line of operation since there are no intervening decisive points because the antagonist strikes the center of gravity directly. Hence, an indirect operational approach is required for a line of operation to exist.

While doctrine linked the concept of operational approach with operational reach and pauses, it might be more consistent to subsume the concept under lines of operation since operational approaches could be either direct or indirect whether they were logical or physical. Further, the definition of direct and indirect are not true independent options but rather redundant with simultaneous and sequential operations. According the definition of the direct operational approach, if it were available, it would effectively negate the need for the elements of operational design beyond center of gravity and simultaneity.

In order for sequential operations to have utility for the campaign planner, there must be at least one indirect operational approach. If only one line of operation exists, it is by definition inherently sequential since it entails a *series* of decisive points. However, if multiple lines of operation are available, the campaign planner has a variety of options available to employ simultaneous and sequential actions to create a synergistic effect on his opponent. Here again Effects Based Operations provided interesting insights because of its visualization of differing levels of effects and the recognition that sequence and correlation are necessary but insufficient prerequisites for causal relationships.<sup>299</sup>

Additionally, by definition, operational reach and operational pause are subordinate elements of the concept of the culminating point and doctrine should subsume them under that concept.

---

<sup>299</sup> Ibid, 29-55.

Their inclusion as equivalent and not subordinate concepts reduces the clarity and hinders the effectiveness of the process. Further, the concept of defensive culmination is nonsensical and doctrine should discard it because withdrawal and counterattack are inherent to the concept of the defense. In addition, it reflects a failed attempt to utilize the principle of polarity where it is not applicable.

Moreover, the concept of culminating point and the supporting ones of operational reach and operational pauses are dependent on having lines of operations, which itself is dependent on an indirect operational approach. In the direct approach, an antagonist is either successful, unsuccessful, or abandons the direct for an indirect approach. In the direct approach culmination equates to defeat.

The U.S. Army needs to expand further on the concept of tempo and its discussion of the temporal dimension in general. The concept of tempo balances the more traditional calls for speed and momentum by striking a balance between the two concepts. The U.S. Army should expand the concept by adding a discussion of the need to balance mounting and executing tempo as discussed by General Simpkin in his book *Race to the Swift*.<sup>300</sup> Additionally, doctrine should address two other fundamental aspects of the temporal dimension – frequency, and duration.

Doctrine implicitly limits its discussions to military operations between antagonist that are within an order of magnitude of each other with regard to a military actions frequency and duration. In this symmetrical view, a faster tempo is beneficial so long as it does not lead to culmination. However, one form of asymmetry that doctrine failed to address was temporal asymmetry. In the on going Global War on Terrorism, opponents of the U.S. Army will attempt to extend the duration of the conflict through infrequent actions that seek to exhaust the national political will or conversely maximize effects through the surprise and shock of infrequent attacks. The U.S. Army has optimized its concepts for campaign planning for relatively high frequency,

---

<sup>300</sup> Richard E Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*(New York: Brassey's, 1986) 106.

short duration wars with intense amplitude. Robert Leonhard provided a cogent discussion on frequency and duration in his book *Fighting by Minutes: Time and the Art of War*.<sup>301</sup> Expanding doctrine to include these concepts would aid the planners in developing campaign plans by fully understanding the temporal dimension beyond sequencing and tempo.

The U.S. Army should delete the concepts of linearity and nonlinearity from its elements of campaign design. These concepts are not the equivalent of primary concepts because they are the consequences resulting from decisions made elsewhere in the campaign design process. They are descriptive of the results of various factors such as forces available; the nature of the terrain; theater geometry; and whether time and resources permit simultaneous or sequential operations.<sup>302</sup> Campaign planners do not choose to conduct nonlinear operations and then use that decision to drive other elements of campaign design. While there may be a correlation between certain elements of campaign design, the degree and level of linearity are the effects not the causal agent. Similarly, contiguity or the lack thereof, results from comparable factors. Since the joint concepts of linearity and contiguity result from and are subordinate to primary elements of campaign design, their discussion on par with the primary elements is inappropriate and confusing. The U.S. Army should subordinate these comments to the primary ones or preferably move them to another section altogether.

The word evolutionary rather than revolutionary better describes the degree of consistency between the Napoleonic era operational environment and the contemporary operational environment. The degree of consistency between the two operational environments supports the continued employment of the theories that emerged from the Napoleonic period. The elements of campaign design that the U.S. Army derived from Jomini and Clausewitz retain validity in the contemporary operational environment

---

<sup>301</sup> Robert R. Leonard, *Fighting by Minutes: Time and the Art of War*. (Westport: Praeger Publishers, 1994) 53-90.

<sup>302</sup> FM 3-0, 5-11 – 5-12.

Yet the elements of operational design still require modification to ensure and enhance their continued effectiveness in the changing conditions. Therefore, the campaign planning methodology remains conditionally valid in the contemporary operational environment and with slight modification will continue its historically valued contributions to the campaign planning methodology.

## BIBLIOGRAPHY

### BOOKS

- Bellamy, Christopher. *The Evolution of Modern Land Warfare: Theory and Practice*. London: Routledge, 1990.
- Bond, Brian. *The Pursuit of Victory: From Napoleon to Saddam Hussein*. New York: Oxford University Press, 1996.
- Chandler, David G. *The Campaigns of Napoleon*. New York: Simon and Schuster, 1966.
- Clausewitz, Carl von. *On War*. Translated by Michael Howard and Peter Paret. Princeton: Princeton University Press, 1984.
- Corbett, Julian S. *Some Principles of Maritime Strategy*. Classics of Seapower series. Annapolis, MD: Naval Institute Press, 1988.
- Dorner, Dietrich. *The Logic of Failure*. New York, NY: Metropolitan Books, 1996.
- Finley, Milton. *The Most Monstrous of Wars: The Napoleonic Guerilla War in Southern Italy, 1806-1811*. Columbia, SC: University of South Carolina Press, 1994.
- Handel, Michael I. *Masters of War: Classical Strategic Thought*, 2 ed. Portland: Frank Cass, 1996.
- Hart B. H. Liddell. *Strategy*. New York: Signet, 1974.
- Hart, B. H. Liddell. *Thoughts on War*. London: Faber and Faber, 1944.
- Hawking, Stephen. *A Brief History of Time: From the Big Bang to Black Holes*. New York: Bantam Books, 1988).
- Hooker, Richard D., editor *Maneuver-Warfare: An Anthology*. Novato: Presidio, 1993.
- Jomini, Baron Antoine Henri de. *The Art of War*, translated by CAPT. G. H. Mendel and LIEUT. W. P. Craighill. London: Lionel Leventhal Limited, 1992.
- Leonard, Robert R. *Fighting by Minutes: Time and the Art of War*. Westport: Praeger Publishers, 1994.
- Leonard, Robert R. *The Art of Maneuver: Maneuver-Warfare Theory and Air-Land Battle*. Novato: Presidio Press, 1991.
- Lind, William S. *Maneuver Warfare Handbook*. Boulder: Westview Press, 1985.

- Luttwak, Edward N. *Strategy: The Logic of War and Peace*. Harvard: Bellknap Press, 1987.
- Mahan, Captain Alfred Thayer. *The Influence Of Sea Power Upon History, 1660-1783*, New York, Hill and Wang 1957.
- Mann, Edward C., Endersby, Gary, and Searle, Thomas R. *Thinking Effects: Effects Based Methodology for Joint Operations*. Maxwell Air Force Base: Air University Press, 1999.
- Mets, David R. *The Air Campaign: John Warden and the Classical Airpower Theorists* Maxwell Air Force Base: Air University Press, 1999.
- Naveh, Shimon. *In Pursuit of Military Excellence: The Evolution of Operational Theory*. Portland: Frank Cass, 1997.
- Paret, Peter, ed. *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*. Princeton: Princeton University Press, 1986.
- Paret, Peter. *Clausewitz and the State: The Man, His Theories, and His Times*. Princeton: Princeton University Press, 1985.
- Paret, Peter. *Understanding War: Essays on Clausewitz and the History of Military Power*. Princeton: Princeton University Press, 1992.
- Rothenberg, Gunther E. *The Art of War in the Age of Napoleon*. Bloomington: Indiana University Press, 1978.
- Simpkin, Richard E. *Race to the Swift: Thoughts on Twenty-First Century Warfare*. New York: Brassey's, 1986.
- Summers, Harry G. *On Strategy: A Critical Analysis of the Vietnam War*. Novato: Presidio Press, 1982.
- Svechin, Alexandre A. *Strategy*. Minneapolis: East View Publications, 1992.
- Toffler, Alvin and Heidi *War and Anti-War: Survival at the Dawn of the 21st Century*. Boston: Little-Brown, 1993.
- Tone, John L. *The Fatal Knot: the Guerilla War in Navarre and the Defeat of Napoleon in Spain*. Chapel Hill, NC: The University of North Carolina Press, 1994.
- Tzu, Sun. *The Art of War*, translated by Ralph D. Sawyer. Boulder: Westview Press, 1994.
- Van Creveld, Martin. *The Transformation of War*. New York: The Free Press, 1991.
- Warden, John A *The Air Campaign: Planning for Combat*. Washington: Brassey's, 1999.

## **REPORTS and MONOGRAPHS**

- Deptula, BG David A. "Effects Based Operations: Change in the Nature of Warfare", Arlington, VA: Aerospace Education Foundation, 2001.
- Dubik, James M. "A Guide to the Study of Operational Art and Campaign Design." Fort Leavenworth, KS: School of Advanced Military Studies, 1991.
- Epstein, Robert M. PH.D. *Napoleon's Last Victory: 1809 and the Emergence of Operational Art* (Fort Leavenworth, KS: Command and General Staff College, 1992.
- Griswold, Myron J. "Considerations in Identifying and Attacking the Enemy's Center of Gravity." Fort Leavenworth, KS: School of Advanced Military Studies, 1986.
- Herbert, Paul H. Leavenworth Papers Number 16, *Deciding What Has to be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations*. Fort Leavenworth, KS: Combat Studies Institute, U.S. Army, CGSC, 1988.
- House, John M. *Do Doctrinal Buzzwords Obscure The Meaning of Operational Art?* Fort Leavenworth, KS: School of Advanced Military Studies, 1989.
- Inman, Micheal T. *The Tactical Center of Gravity: How Useful is The Concept*. Fort Leavenworth, KS: School of Advanced Military Studies, 1990.
- Kelly, Patrick. *Modern Scientific Metaphors of Warfare: Updating the Doctrinal Paradigm*. Fort Leavenworth, KS: School of Advanced Military Studies, 1993.
- Keppler, Timothy J. *The Center of Gravity Concept: A Knowledge Engineering Approach to Improved Understanding and Application*. Fort Leavenworth, KS: School of Advanced Military Studies, 1995.
- Lau, Jeffiey D. *Seeking Order in The Confusion of Bosnia: Does Center of Gravity Apply?* Fort Leavenworth, KS: School of Advanced Military Studies, 1996.
- Luvaas, Jay. "Frederick the Great: The Education of a Great Captain," in The John Biggs Cincinnati Lectures in Military Leadership and Command 1986, edited by Henry S. Bausum. Lexington, VA: The VMI Foundation, 1986.
- Matheny, Michael R. *The Development of the Theory and Doctrine of Operational Art in the American Army, 1920-1940*. Fort Leavenworth, KS: Command and General Staff College, 1988.
- Metz, Steven, and James Kievit. "Strategy and the Revolution in Military Affairs: From Theory to Policy." Research Project, U.S. Army War College, 1995.
- Murray, Williamson, ed. *Transformation Concepts for National Security in the 21<sup>st</sup> Century*. Carlisle, PA: Strategic Studies Institute, 2002.

- Paret, Peter and Daniel Moran, transl. *Carl von Clausewitz: Two Letters on Strategy*. Fort Leavenworth: Combat Studies Institute, 1984.
- Peterson, Gary C. *Center of Gravity: A Most Important Concept Mostly Misunderstood*. Newport, RI: Naval War College Department of Operations, 1994.
- Rowe, Lloyd J. *Center of Gravity or Strange Attractors*. Newport, RI: Naval War College Joint Military Operations Department, 1995.
- Saxman, John B *The Concept of Center of Gravity: Does It Have Utility in Joint Doctrine and Campaign Planning?* Fort Leavenworth, KS: School of Advanced Military Studies, 1992.
- Schneider, James J. PH.D. *The Eye of Minerva: The Origin, Nature, and Purpose of Military Theory and Doctrine*. Fort Leavenworth, KS: Command and General Staff College, 1991.
- Schneider, James J. PH.D. *Vulcan 's Anvil: The American Civil War and the Emergence of Operational Art*. Fort Leavenworth, KS: Command and General Staff College, 1991.
- Schneider, James J. PH.D. *The Theory of Operational Art*. Fort Leavenworth, KS: Command and General Staff College, 1988.
- Swain, Richard M. PH.D. *Filling the Void: The Operational Art and the U.S. Army*. Fort Leavenworth, KS: Command and General Staff College, 1989.
- Thorton, Skip. *A Working Theory of Operational Art in Modern War*. Fort Leavenworth, KS: Command and General Staff College, 1989.
- Warden, John A. "Employing Airpower in the 21st Century." The Future of Airpower in the Aftermath of the Gulf War. Research project, Air University, 1992.

## ARTICLES

- Allen, Ralph L. "Piercing the Veil of Operational Art." *Parameters*, (Summer 1995): 111-119.
- Beyerchen, Alan. "Clausewitz, Nonlinearity, and the Unpredictability of War." *International Security* 17, no. 3 (winter 1992): 59-90.
- Greer, James K., COL. "Operational Art for the Objective Force," *Military Review*. September-October 2002
- Holder, L.D., COL, U.S. Army. "Educating and Training for Theater Warfare." *Military Review*, (Sep., 1990): 85-99.

- Jablonsky, David. "US Military Doctrine and the Revolution in Military Affairs," *Parameters*, (Autumn 1994) 18-26.
- Marcy, Scott, A. "Operational Art: Getting Started." *Military Review*, (Sep. 1990): 106-112.
- Mazarr, Michael et al., *The Military Technical Revolution. A Structural Framework*. Washington: CSIS, March 1993.
- Newell, Clayton, R. "What is Operational Art," *Military Review*, (Sep. 1990): 2-16.
- Powell, Colin L., General. "A Doctrinal Statement of Selected Joint Operational Concepts." *Joint Electronic Library*, (Washington, DC: US Government Printing Office 1 Feb, 1995).
- Saint, Crosbie E. General, "A CINC's View of Operational Art." *Military Review*, (Sep. 1990): 65-78.
- Schneider, James J. and Lawrence L. Izzo. "Clausewitz's Elusive Center of Gravity." *Parameters*.
- Schneider, James J. PH.D. "Theoretical Implications of Operational Art." *Military Review*, (Sep. 1990): 17-27.
- Shephard, John E. "On War: Is Clausewitz Still Relevant?" *Parameters* 20, no. 9 (September 1990): 85-99.
- Swain, Richard M. "Written History of Operational Art." *Military Review*, (Sep. 1990): 100-106.
- Warden, John A. III. "Enemy as a System." *Airpower Journal*, (Spring 1995): 40-55.
- Widder, Werner, MG. "Auftragstaktik and Innere Fuhrung: Trademarks of German Leadership", *Military Review*. September-October 2002.

## **U. S. GOVERNMENT PUBLICATIONS**

- Bush, George W., *National Security Strategy of the United States of America*. Washington: The White House, 2002.
- Cohen, Elliot, Director. *Gulf War Air Power Survey*. Washington: U.S. Government Printing Office, 1993.
- Department of Defense. *National Military Strategy of the United States*. Washington: Department of Defense, 1997.
- Department of the Army, U. S. Army Field Manual 100-5, *Operations*. Department of the Army, Washington, D.C.: August 1982.

Department of the Army, U. S. Army Field Manual 100-5, *Operations*. Department of the Army, Washington, D.C.: May 1986.

Department of the Army, U. S. Army Field Manual 100-5, *Operations*. Department of the Army, Washington, D.C.: June 1993.

Department of the Army, U. S. Army Field Manual 3-0, *Operations*. Department of the Army, Washington, D.C.: June 2001.

Joint Chiefs of Staff. Joint Publication 0-2, *Unified Action Armed Services*. Washington: Joint Staff, 1995.

Joint Chiefs of Staff. Joint Publication 1-0, *Joint Warfare of the U.S. Armed Forces*. Washington: Joint Staff, 1995.

Joint Chiefs of Staff. Joint Publication 3-0, *Doctrine for Joint Operations*. Washington: Joint Staff, 1990.

Joint Chiefs of Staff. *Joint Vision 2010*. Fort Monroe: Joint Warfighting Center, 1996.

Joint Chiefs of Staff. Marine Corps Doctrinal Publication 1-1, *Strategy*. Washington: Headquarters, United States Marine Corps, 1997.

Joint Chiefs of Staff. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, Joint Electronic Library, Washington, D.C.: US Government Printing Office, 1 September 2001.

Joint Chiefs of Staff. Joint Publication 3-0, *Doctrine for Joint Operations*, Joint Electronic Library, Washington, D.C.: US Government Printing Office, 10 September 2001.

Joint Chiefs of Staff. Joint Publication 5-0, *Doctrine for Planning Joint Operations*, Joint Electronic Library, Washington, D.C.: US Government Printing Office, April 1995.

Joint Chiefs of Staff. Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, Joint Electronic Library, Washington, D.C.: US Government Printing Office, April 1995.

Joint Chiefs of Staff. Marine Corps Doctrinal Publication 1-2, *Campaigning*. Washington: Headquarters, United States Marine Corps, 1997.

Strange, Joe *Centers Of Gravity And Critical Vulnerabilities: Building On The Clausewitzian Foundation So That We Can All Speak The Same Language*. Quantico, VA: Marine Corps University Foundations, 1996.

U. S. Army Field Manual 100-7, *Decisive Force: The Army in Theater Operations*. Department of the Army, Washington, D.C.: May 1995.

U.S. Army Field Manual 1, *The Army*. Department of the Army, Washington, D.C. June 2001.

U.S. Army Field Manual 100-15, *Corps Operations*. Department of the Army, Washington, D.C. 1 June 1996.

U.S. Army Field Manual 101-5-1, Marine Corps Reference Publication 5-24, *Operational Terms and Graphics*. Headquarters, Department of the Army, United States Marine Corps, Washington, D.C.: Sep, 1997.

United States Joint Forces Command, *A Concept for Rapid Decisive Operations: RDO Whitepaper Version 2.0*, Norfolk: United States Joint Forces Command, 2001.

United States Marine Corps. Marine Corps Doctrinal Publication 1, *Warfighting*. Washington: Headquarters, United States Marine Corps, 1997.

### **Internet and Other Sources**

Bassford, Christopher. "Jomini and Clausewitz: Their Interaction"; available from <http://www.clausewitz.com/CWZHOME/Jomini/JOMINIX.htm>; Internet. Accessed 09 February 2003.

The Clausewitz Homepage. Database on-line. Available from <http://www.clausewitz.com/CWZHOME/CWZBASE.htm>. Internet. Accessed 22 February 2003.

U.S. Army, *White Paper, Concepts for the Objective Force*, available at <http://www.army.mil/features/WhitePaper/ObjectiveForceWhitePaper.pdf>. Internet. Accessed 22 February 2003.